



## BULKY DOCUMENTS

(Exceeds 100 pages)

Proceeding/Serial No: **92050789**

Filed: 10/18/2010

Title: *PETITIONER'S NOTICE OF FILING CERTIFIED  
TRANSCRIPT OF JOHN WASHELESKI'S TESTIMONY  
DEPOSITION*

Part 1 of 1

**92050789**

UNITED STATES PATENT AND TRADEMARK OFFICE  
TRADEMARK TRIAL AND APPEAL BOARD

**TTAB**

NARTRON CORPORATION

Petitioner,

v.

Cancellation No. 92050789

HEWLETT-PACKARD  
DEVELOPMENT COMPANY, L.P.,

11-7-1197/4\*

Respondent.

**PETITIONER'S NOTICE OF FILING CERTIFIED  
TRANSCRIPT OF JOHN WASHELESKI'S TESTIMONY DEPOSITION**

Pursuant to 37 CFR § 2.123(h) and 2.125, Petitioner Nartron Corporation hereby gives notice that the attached certified transcript of John Washeleski's Testimony Deposition, taken September 2, 2010, is being filed with the Trademark Trial and Appeal Board herewith. The confidential portions of the deposition and the confidential exhibits are being filed under separate cover.

Respectfully submitted,

**BROOKS KUSHMAN P.C.**

By:

*Hope Shovein*

**ROBERT C.J. TUTTLE**  
**HOPE V. SHOVEIN**  
1000 Town Center,  
Twenty-Second Floor  
Southfield, Michigan 48075  
(248) 358-4400

*Attorneys for Petitioner*

Dated: **October 12, 2010**

  
**10-18-2010**

**CERTIFICATE OF SERVICE**

I certify that I served:

**PETITIONER'S NOTICE OF FILING CERTIFIED  
TRANSCRIPT OF JOHN WASHELESKI'S TESTIMONY DEPOSITION**

on October 12, 2010 by:

    delivering

  √   mailing (via First-Class mail)

a copy to:

MARTIN R. GLICK  
DIANA D. DiGENNARO  
HOWARD, RICE, NEMEROVSKI,  
CANADY, FALK & RABKIN  
Three Embarcadero Center  
Seventh Floor  
San Francisco, CA 94111

*Attorneys for Respondent*



Hope V. Shovein

**CERTIFICATE OF MAILING**

I hereby certify that **PETITIONER'S NOTICE OF FILING CERTIFIED  
TRANSCRIPT OF JOHN WASHELESKI'S TESTIMONY DEPOSITION** is being  
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Alexandria, VA 22313-1451

On this 12<sup>th</sup> day of October, 2010.



Hope V. Shovein

1 UNITED STATES PATENT AND TRADEMARK OFFICE  
2 TRADEMARK TRIAL AND APPEAL BOARD  
3  
4 NARTRON CORPORATION,  
5 Petitioner,  
6 -vs- Cancellation No.  
7 92050789  
8  
9 HEWLETT-PACKARD DEVELOPMENT COMPANY, L.P.,  
10 Respondent.

11 \_\_\_\_\_/

12  
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14  
15 The Deposition of JOHN WASHELESKI,  
16 Taken at 1000 Town Center, 22nd Floor,  
17 Southfield, Michigan,  
18 Commencing at 1:08 p.m.,  
19 Thursday, September 2, 2010  
20 Before Laura J. Steenbergh, CSR-3707, RPR, CRR, RMR

21  
22  
23  
24  
25

1 APPEARANCES:

2

3 MR. ROBERT C.J. TUTTLE P25222

4 MS. HOPE V. SHOVEIN P64116

5 Brooks Kushman, P.C.

6 1000 Town Center, 22nd Floor

7 Southfield, Michigan 48075

8 (248) 358-4400

9 Appearing on behalf of the Petitioner.

10

11

12 MS. SARAH J. GIVAN, ESQ.

13 Howard, Rice, Nemerovski,

14 Canady, Falk & Rabkin, PC

15 Three Embarcadero Center, Seventh Floor

16 San Francisco, California 94111-4024

17 (415) 434-1600

18 Appearing on behalf of the Respondent.

19

20

21

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1 Southfield, Michigan  
2 Thursday, September 2, 2010  
3 About 1:08 p.m.

4 JOHN WASHELESKI,  
5 having first been duly sworn, was examined and testified  
6 on his oath as follows:

7 EXAMINATION BY MR. TUTTLE:

8 Q. State your name for the record.

9 A. John Michael Washeleski.

10 Q. Mr. Washeleski, by whom are you employed?

11 A. Nartron.

12 Q. What is your position with Nartron?

13 A. Senior vice-president of engineering.

14 Q. How many years have you been employed by Nartron, or  
15 when did you begin, if I might ask?

16 A. April 1st, '85.

17 Q. Have you been employed by Nartron continuously to  
18 present?

19 A. Yes.

20 Q. Could you profile your successive positions with  
21 Nartron, beginning from April 1, 1985 through the  
22 present, just in summary form. Would you do that,  
23 please?

24 A. Staff engineer, director of engineering, vice-president,  
25 and then senior vice-president.

1 Q. Are you senior vice-president of engineering today?

2 A. Yes.

3 Q. Who operates Nartron or oversees the operations of  
4 Nartron on a day-to-day basis at this time?

5 A. I do.

6 Q. Do you have overarching responsibility for activities  
7 outside of engineering?

8 A. Yes.

9 Q. Who did you report to?

10 A. The CEO.

11 Q. And by name who is that?

12 A. Norman Rautiola.

13 Q. In your position with Nartron, do you have knowledge of  
14 product activities relating to the Smart Touch  
15 trademark?

16 A. Yes.

17 Q. What is the business of Nartron?

18 A. Sense, compute, control products.

19 Q. Sense, compute and control. Does that include  
20 electronic products?

21 A. Electronic, electromechanical, a combination.

22 Q. Do those products use or work with programmable logic  
23 devices?

24 A. They work with programmable logic devices,  
25 microcontrollers, microcomputers, basic circuits.

1 Q. Is there any limitation on the types of computers they  
2 can work with, or do they work with potentially all  
3 types?

4 A. All types.

5 MR. TUTTLE: I will ask the court reporter to  
6 mark this as Number 1.

7 PETITIONER'S EXHIBIT 1

8 WAS MARKED BY THE REPORTER

9 FOR IDENTIFICATION

10 BY MR. TUTTLE:

11 Q. Mr. Washeleski, the court reporter's marked as  
12 Petitioner's Exhibit Number 1 a document entitled  
13 Petitioner's Amended Notice of Taking Testimony.

14 Do you have that before you, sir?

15 A. Yes.

16 Q. Are you appearing here today in response to that Notice?

17 A. Yes.

18 Q. Are you prepared to testify on behalf of Nartron  
19 Corporation in this matter?

20 A. Yes.

21 MR. TUTTLE: Would you mark this as 2, please?

22 PETITIONER'S EXHIBIT 2

23 WAS MARKED BY THE REPORTER

24 FOR IDENTIFICATION

25 MS. GIVAN: What's the Bates number on this?

1 MR. TUTTLE: I don't know.

2 MS. SHOVEIN: If it has not already been  
3 produced, we can produce them.

4 MS. GIVAN: I don't think it has been.

5 MS. SHOVEIN: Some have, and a copy of the  
6 Bates number might not be here.

7 MS. GIVAN: Yeah, I'm not familiar with this  
8 one. I don't think it has.

9 BY MR. TUTTLE:

10 Q. Could you identify the document which we've marked as  
11 Exhibit 2, please?

12 A. Yeah. This is a product data sheet for an integrated  
13 intelligent power system.

14 Q. Is this a Nartron document?

15 A. Yes.

16 Q. Are you familiar with the contents of this document?

17 A. Yes.

18 Q. Are you familiar with the product or products described  
19 in this document?

20 A. Yes.

21 Q. Do you see on the first page the heading Features, and  
22 then there's a bulleted item below that, it says,  
23 Integrated faceplate panel and capacitive Smart Touch  
24 pad with sensor electronics. Do you see that, sir?

25 A. Yes.

1 Q. Okay. What is the product application of a capacitive  
2 Smart Touch pad in the context of this document? What  
3 is the product application?

4 A. It's a reconfigurable centerstack, with a touch  
5 sensitive surface, using the capacitive Smart Touch.

6 Q. Now you used the term centerstack. Does that have an  
7 acquired meaning in the automotive industry?

8 A. Depends on which OEM you're talking to.

9 Q. All right. What has been your experience in what the  
10 term centerstack refers to more descriptively?

11 A. That's the -- typically that's the area above your  
12 shifter in the center of the console that has your  
13 navigation, your HVAC, radio, you know, type of controls  
14 for the vehicle.

15 MR. TUTTLE: Would you mark that as the next  
16 one, please.

17 PETITIONER'S EXHIBIT 3

18 WAS MARKED BY THE REPORTER

19 FOR IDENTIFICATION

20 BY MR. TUTTLE:

21 Q. Mr. Washeleski, the court reporter's placed before you a  
22 single-page document marked as Exhibit 3, under the  
23 masthead that refers Cadillac News. Could you identify  
24 that document, sir?

25 MS. GIVAN: Objection, lack of foundation.

1 THE WITNESS: It is a news article ran by the  
2 local newspaper.

3 BY MR. TUTTLE:

4 Q. Okay. The byline says Reed City. When you say local,  
5 is this newspaper local to Reed City?

6 A. Yeah. 25 miles north of Cadillac, Michigan, is Reed  
7 City.

8 Q. And then in the box there's the sidebar that says  
9 Nartron Technology, do you see that?

10 A. Yes.

11 Q. Do you see the graphic in the center of the page?

12 A. Yes.

13 Q. Is that an example of a centerstack?

14 A. No. That's a centerstack with a cluster integrated. It  
15 goes beyond the centerstack.

16 Q. Oh, it's additional to the centerstack?

17 A. Right.

18 Q. Okay. On the sidebar, the first paragraph states, The  
19 IQ power solid state touchscreen systems use powerful  
20 NPA (multiple-point activation), proprietary Smart Touch  
21 technology to empower the user to simply reach and come  
22 close to its surface (which illuminates the IP), and  
23 with a flick or gesture of a finger , quickly scroll  
24 through a wide variety menu options such as climate,  
25 music, GPS, et cetera. Do you see that, sir?

1 A. Yes.

2 Q. Okay. In the context of what's described there, does  
3 Nartron employ electronic proximity sensors and  
4 switching devices in relation to the Smart Touch  
5 technology?

6 A. Yes.

7 Q. Okay. And is the electronic proximity sensor through  
8 capacitive sensing?

9 A. Yes.

10 Q. Okay. And does the, in a sense, proximity of the user  
11 effectuates switching functions?

12 MS. GIVAN: Objection, vague, ambiguous.

13 THE WITNESS: Can you repeat the question?

14 MR. TUTTLE: She's objected, I'll restate the  
15 question.

16 BY MR. TUTTLE:

17 Q. Let me ask you this more generally. Is what's shown and  
18 described and illustrated in Exhibit 3 an implementation  
19 of Nartron Smart Touch technology?

20 A. Yes.

21 MR. TUTTLE: May we go to the next one, please  
22 and mark this as Exhibit 4.

23 PETITIONER'S EXHIBIT 4

24 WAS MARKED BY THE REPORTER

25 FOR IDENTIFICATION

1 BY MR. TUTTLE:

2 Q. Mr. Washeleski, can you identify what the court reporter  
3 has marked as Exhibit 4?

4 MS. GIVAN: Objection, lack of foundation.

5 THE WITNESS: It's a Microsoft News article  
6 that shows the same items in Exhibit 3, stating that's  
7 the wave of the future for automotive.

8 BY MR. TUTTLE:

9 Q. And just to clarify, the product illustrated in Exhibit  
10 4 is the same product as illustrated and described in  
11 Exhibit 3, is that accurate?

12 A. Yes.

13 Q. Okay.

14 MR. TUTTLE: The next exhibit, please.

15 MS. GIVAN: I just want to state my objection  
16 on the record that we object to the admission of  
17 exhibits that weren't produced during discovery.

18 PETITIONER'S EXHIBIT 5

19 WAS MARKED BY THE REPORTER

20 FOR IDENTIFICATION

21 BY MR. TUTTLE:

22 Q. Do you have Exhibit 5 before you, Mr. Washeleski?

23 A. Yes.

24 Q. Can you identify Exhibit 5, please?

25 MS. GIVAN: Objection, lack of foundation.

1 THE WITNESS: Exhibit 5 includes what was in  
2 Exhibit 3 and 4 as the product, except this time it's  
3 actually shown installed into a vehicle.

4 BY MR. TUTTLE:

5 Q. And what vehicle is that?

6 A. That's a Chrysler 200C.

7 Q. At the bottom left of the first page of the exhibit and  
8 the bottom right of the second page there's a reference  
9 to Interior Motives, Spring 2009. Do you see that, sir?

10 A. Yes.

11 Q. Okay. Is that a publication?

12 A. Yes.

13 Q. And are you familiar with that publication?

14 A. Yes.

15 Q. Okay. And is that directed to interest groups for  
16 automotive interiors?

17 A. Yes.

18 Q. Okay. Now, continuing with Exhibit 5, at the top right  
19 on the first page is a heading, Chrysler 200C. Do you  
20 see that, sir?

21 A. Yes.

22 Q. And then two lines below that it says developed with  
23 Nartron. Do you see that, sir?

24 A. Yes.

25 Q. Is that accurate, that this was developed in conjunction

1 with Nartron?

2 A. Yes.

3 Q. And what's shown there implements Nartron Smart Touch  
4 technology, is that accurate?

5 A. Yes.

6 MR. TUTTLE: Next one.

7 PETITIONER'S EXHIBIT 6

8 WAS MARKED BY THE REPORTER

9 FOR IDENTIFICATION

10 BY MR. TUTTLE:

11 Q. Can you identify what's been marked as Exhibit 6, sir?

12 A. Yes. An article from May of '09, from a magazine.

13 Q. Okay. The article is titled Virtual Revolution, with a  
14 subtitle Liquid Crystal Displays are Replacing Analog  
15 Devices to Give More Information in a Reconfigurable  
16 Format. Do you see that, sir?

17 A. Yes.

18 Q. There's a reference made in this article to Nartron  
19 Smart Touch technology?

20 A. Yes.

21 Q. Could you point that out where that reference appears?

22 A. Page 40. The 200C concept car is included in the  
23 article.

24 Q. Okay. In the left column there's three frames of  
25 photographs, and the top frame -- excuse me, the second

1 frame first, the middle frame, refers to the Chrysler  
2 200C concept car. Is that what you're pointing out,  
3 sir?

4 A. Yes.

5 Q. Okay. Now, in the right column, the last two  
6 paragraphs, there's reference to Chrysler's 200C concept  
7 car. Do you see that?

8 A. Yes.

9 Q. Okay. Is Nartron's Smart Touch technology implemented  
10 in Chrysler's 200C concept car?

11 A. Yes.

12 Q. There's a quotation from Brad Gieske -- G I E S K E -- a  
13 designer for Chrysler in the final paragraph. Do you  
14 see the final paragraph, sir, and that name?

15 A. Yes.

16 Q. Okay. It says, "We feel very strongly this is where the  
17 future is headed, but as the display becomes larger and  
18 more capable, so does the need to refine its interaction  
19 with drivers". Do you see that?

20 A. Yes.

21 Q. Okay. Does the subject of that quotation where there's  
22 a display and an interaction with drivers involve Smart  
23 Touch technology?

24 A. Yes.

25 Q. Does that involve capacitive sensing of proximity of the

1 driver or operator's fingers?

2 MS. GIVAN: Objection, vague, ambiguous.

3 THE WITNESS: Can you repeat the question?

4 BY MR. TUTTLE:

5 Q. Okay. When there's a screen that uses capacitive  
6 sensing, does it sense the proximity or presence of a  
7 finger of a driver or passenger?

8 A. Yes.

9 Q. Okay. And is the position or placement of the driver or  
10 passenger's finger part of the procedure for  
11 implementing a control on the screen?

12 A. It's the input for a control, right.

13 PETITIONER'S EXHIBIT 7

14 WAS MARKED BY THE REPORTER

15 FOR IDENTIFICATION

16 BY MR. TUTTLE:

17 Q. Mr. Washeleski, could you identify what's been marked as  
18 Exhibit 7?

19 A. Yes. It's a Nartron sheet of applications and uses for  
20 the IQ Power System.

21 Q. You see there is a number of call-outs with arrows, and  
22 at the top right is one call-out that says Smart Touch  
23 Centerstack, Part Number 1310673. Do you see what I'm  
24 referring to, sir?

25 A. Yes.

1 Q. Okay. Are you familiar with what's being called out or  
2 described there?

3 A. Yes.

4 Q. Are you personally familiar with part number 1310673?

5 A. Yes.

6 Q. Okay. Does the Smart Touch centerstack called out there  
7 use Nartron's Smart Touch technology?

8 MS. GIVAN: Objection, vague, ambiguous.

9 THE WITNESS: Yes.

10 BY MR. TUTTLE:

11 Q. Does that technology involve electronic proximity  
12 sensors or electronic proximity sensing?

13 A. Yes.

14 Q. And are there switching occur as part of the control  
15 function?

16 A. Yes.

17 PETITIONER'S EXHIBIT 8

18 WAS MARKED BY THE REPORTER

19 FOR IDENTIFICATION

20 BY MR. TUTTLE:

21 Q. Mr. Washeleski, could you identify what the court  
22 reporter's marked as Exhibit Number 8, please?

23 A. Yes. It's a data sheet for a different version of IQ  
24 Power.

25 Q. And if you don't mind, if you could locate Exhibit 2,

1 please, place it alongside of it. Do you have the data  
2 sheets of Exhibit 8 and Exhibit 2 side-by-side, sir?

3 A. Yes.

4 Q. Exhibit 8 is referred to as a Centerstack Assembly IQ  
5 Power Module. Is that the centerstack assembly that's  
6 been featured in prior exhibits?

7 A. A version of it. There's many different versions.

8 Q. Okay. Does the centerstack assembly of Exhibit 8 use  
9 Nartron's Smart Touch technology?

10 A. Yes.

11 Q. Does that Smart Touch technology involve electronic  
12 proximity sensing?

13 A. Yes.

14 Q. And is the electronic proximity sensing used to control  
15 switching functions?

16 MS. GIVAN: Objection, leading.

17 THE WITNESS: It's used to control switching  
18 and output functions.

19 MR. TUTTLE: Okay. Then we go to number 9,  
20 please.

21 PETITIONER'S EXHIBIT 9

22 WAS MARKED BY THE REPORTER

23 FOR IDENTIFICATION

24 BY MR. TUTTLE:

25 Q. Mr. Washeleski, would you identify what has been marked

1 as Exhibit 9, please.

2 MS. GIVAN: I'm going to object to this  
3 document as hearsay, lack of foundation.

4 BY MR. TUTTLE:

5 Q. Can you identify the document, sir?

6 A. Yes. It's an SAE 2009 abstract paper that was released  
7 during the 2009 SAE show in Detroit.

8 Q. You see at the top right, it's got 2009-01-0521. Is  
9 that an article number assigned by SAE?

10 A. Yes.

11 Q. And SAE is the Society of Automotive Engineers, is that  
12 accurate?

13 A. Yes.

14 Q. Do you know Erin Kirby -- E R I N -- Kirby -- K I R B Y?

15 A. Yes.

16 Q. Does Erin Kirby report up to you?

17 A. Yes.

18 Q. Do you know Rachel Guerrero -- G U E R R E R O?

19 A. Yes.

20 Q. Does Nartron have a working relationship with Samuel  
21 Automotive USA?

22 A. Yes.

23 Q. In what context does Nartron work with Samuel Automotive  
24 USA?

25 A. We're providing the Smart Touch sensing, switching and

1 controlling interface for the centerstacks for Samuel's  
2 customers.

3 Q. Is Samuel Automotive a supplier in the United States  
4 automotive industry?

5 A. Yes.

6 Q. Were you familiar with this article before it was  
7 published?

8 A. Yeah, I approved it before it was released.

9 Q. Under your approval is the contents of this article  
10 accurate?

11 A. Yes.

12 Q. On the last page of the exhibit --

13 MR. TUTTLE: Do you have this page, or was  
14 that a separate exhibit?

15 Do you mind if we just take a 10-second break?

16 MS. GIVAN: Yeah.

17 MR. TUTTLE: We need a couple photocopies. I  
18 want to mark it as the next exhibit.

19 MS. GIVAN: Sure.

20 (A short recess was taken)

21 PETITIONER'S EXHIBIT 10

22 WAS MARKED BY THE REPORTER

23 FOR IDENTIFICATION

24 BY MR. TUTTLE:

25 Q. Okay. Can we continue with attention to Exhibit 9, Mr.

1           Washeleski, this one (indicating). Okay. Exhibit 9,  
2           the first page, left column, do you see the heading  
3           Approach?

4   A.    Yes.

5   Q.    Okay. The first sentence below that refers to the  
6           automotive centerstack console shown in Figure 1. Do  
7           you see that?

8   A.    Yes.

9   Q.    Figure 1 is --

10                   MS. GIVAN: I'm sorry, I'm not sure I'm  
11                   following.

12                   MR. TUTTLE: Okay. Right here (indicating).

13                   MS. GIVAN: Okay. I'm sorry. Thank you.

14                   MR. TUTTLE: That's all right.

15   BY MR. TUTTLE:

16   Q.    And then Figure 1 appears in the right column on the  
17           first page of Exhibit 9. Are you with me, Mr.  
18           Washeleski?

19   A.    Yes.

20   Q.    Okay. Does Figure 1 illustrate an automotive  
21           centerstack console that implements Nartron's Smart  
22           Touch technology?

23                   MS. GIVAN: Objection, leading.

24                   THE WITNESS: No.

25

1 BY MR. TUTTLE:

2 Q. Okay. Does this article refer to products that  
3 implement Nartron's Smart Touch technology?

4 A. Yes. Figure 1 is what it is today, and then the other  
5 figures show the evolution to the final product, which  
6 is Smart Touch with capacitive sensing and control.

7 Q. Okay. Now let's go, if we may, to Exhibit 10. Do you  
8 see the heading Abstract?

9 A. Yes.

10 Q. Okay. The first sentence below that states, Smart Touch  
11 sensing is a breakthrough in human interface technology,  
12 allowing direct access to computer power, such as the  
13 highly successful iPhone and other handheld devices. Do  
14 you agree with that?

15 A. Yes.

16 Q. Is that accurate, based on your experience?

17 MS. GIVAN: Objection, calls for opinion.

18 THE WITNESS: Yes.

19 BY MR. TUTTLE:

20 Q. By combining the reliability and flexibility of  
21 completely solid state sensing, along with anthrotronic  
22 -- A N T H R O T R O N I C -- considerations, capacitive  
23 sensing interface technology creates new automotive  
24 design opportunities. Is that accurate, based on your  
25 experience?

1 A. Yes.

2 Q. Mr. Washeleski, do you personally interact with  
3 Nartron's customers?

4 A. Yes.

5 Q. Do you interact with Nartron's customers' engineering  
6 personnel?

7 A. Yes.

8 Q. You personally interact with Nartron's customers'  
9 purchasing personnel?

10 A. I try not to.

11 Q. But do you from time to time?

12 A. Yes.

13 Q. Okay. Continuing in Exhibit 10, do you see there where  
14 it says References, and item one below that it lists a  
15 number of United States patents?

16 A. Yes.

17 Q. Are you named as an inventor on one or more of those  
18 patents?

19 A. I can't recall.

20 Q. Okay. For example, the '183 patent, are you an inventor  
21 on that patent?

22 A. I believe so.

23 Q. Okay.

24 MR. TUTTLE: May we go to 11, please, the next  
25 exhibit?

1 PETITIONER'S EXHIBIT 11

2 WAS MARKED BY THE REPORTER

3 FOR IDENTIFICATION

4 BY MR. TUTTLE:

5 Q. Mr. Washeleski, can you identify Exhibit 11, a  
6 single-page document headed Nartron Firsts?

7 A. Yes.

8 Q. What is it, sir?

9 A. These are a list of products that were first developed  
10 and patented where a patent was granted for the product.

11 Q. Okay. And you've been with Nartron from 1985 to  
12 present, correct?

13 A. Yes.

14 Q. Okay. How long have you been vice-president of  
15 engineering?

16 A. I don't recall.

17 Q. Has it been more than 10 years?

18 A. I don't recall.

19 Q. Okay. In the right column is a highlighted item, it  
20 says, First solid state interactive  
21 displays/touchscreens. Do you see that?

22 A. Yes.

23 Q. Were you personally involved in the development of the  
24 interactive displays/touchscreens?

25 A. Yes.

1 Q. What initiated Nartron's involvement in the development  
2 of interactive displays and touchscreens? Was there  
3 some commercial impetus?

4 A. Yeah. In Exhibit 6, on page 39.

5 Q. Okay.

6 A. Is the Buick Reatta. It had a video screen, but it had  
7 a mechanical membrane switch over the surface that  
8 Nartron put into production for General Motors. We  
9 started working on that in '85, and that's when we  
10 started looking at changing from mechanical switches to  
11 solid state switching.

12 Q. Okay. Have you continued work in the field of changing  
13 from mechanical switching to solid state switching from  
14 that time through the present?

15 A. Yes.

16 MR. TUTTLE: Mark this as 12, please.

17 PETITIONER'S EXHIBIT 12

18 WAS MARKED BY THE REPORTER

19 FOR IDENTIFICATION

20 BY MR. TUTTLE:

21 Q. Mr. Washeleski, Exhibit 12 is a copyright of the -- at  
22 least it's a photocopy of the Nartron registration  
23 involved in this proceeding for Smart Touch. Have you  
24 seen this before, sir?

25 A. Yes.

1 Q. Do you see the date of first use is indicated as  
2 December 17, 1986?

3 A. Yes.

4 Q. Does that compare closely in time to Nartron's activity  
5 and transitioning from mechanical switching to solid  
6 state switching?

7 A. Yes.

8 Q. And do you see the goods here are electronic proximity  
9 sensors and switching devices? See at the left, lower  
10 left?

11 A. Yes.

12 Q. Do these electronic proximity sensors and switching  
13 devices relate to Nartron's early work in solid state  
14 interactive display/touchscreens?

15 MS. GIVAN: I'm sorry, objection, ambiguous,  
16 vague. Are you referring to a different document here?

17 MR. TUTTLE: Yeah. I'm just reading from  
18 this. I'm sorry.

19 Maybe you should have the question -- read it  
20 back.

21 MS. GIVAN: That's Exhibit 11, right?

22 MR. TUTTLE: Yeah.

23 Do you mind reading the question back?

24 (Record repeated as requested)

25 THE WITNESS: Yes.

1 BY MR. TUTTLE:

2 Q. Have you been involved with products branded by Nartron  
3 under Smart Touch from 1986 through the present?

4 A. Yes.

5 Q. Has Nartron used the Smart Touch trademark in connection  
6 with electronic proximity sensors and switching devices  
7 continuously from 1986 through present?

8 A. Yes.

9 Q. Is Smart Touch an important Nartron trademark?

10 A. Yes.

11 MR. TUTTLE: Please go to the next exhibit.

12 PETITIONER'S EXHIBIT 13

13 WAS MARKED BY THE REPORTER

14 FOR IDENTIFICATION

15 BY MR. TUTTLE:

16 Q. Mr. Washeleski, the court reporter has marked as Exhibit  
17 13 a two-page document titled on the first page,  
18 Capabilities - Nartron Commitment to Your Products.  
19 Could you identify this exhibit, please?

20 A. Yes. It's a Nartron data sheet for our capabilities,  
21 and with a listing of products by application.

22 Q. Would you go to the second page, please? You see the  
23 three columns and in the center column there's a heading  
24 Control Devices?

25 A. Yes.

1 Q. Do you see the fourth entry below that, the first is  
2 Smart Touch switches?

3 A. Yes.

4 Q. Okay. Has Nartron featured Smart Touch as a trademark  
5 for its switches in its marketing communications?

6 A. Yes. This is a pretty old document, it shows a TM here.

7 Q. Right. And on Exhibit 13, do you see the first page,  
8 it's got area owed code 616? Is that the current area  
9 code for Nartron?

10 A. Yes.

11 Q. 616?

12 A. Is it? I don't know. I have no idea. To be honest  
13 with you, I'm calculator crippled or phone crippled now.

14 Q. We don't need to get into it. That's all right.

15 A. Oh, no, you asked a question, I better look.

16 No, it's not. No, it's not. It's 231 area  
17 code.

18 Q. Okay. And then also at the bottom here, alongside of it  
19 refers to a Pontiac, Michigan address, do you see that?

20 A. Yes.

21 Q. Does Nartron any longer have a Pontiac, Michigan office?

22 A. No.

23 Q. How many years roughly has Nartron not had a Pontiac,  
24 Michigan office?

25 A. Probably more than 15 years.

1 Q. Would it be accurate to infer then that this document's  
2 15 or more years old, this document, Exhibit 13, based  
3 on the fact you just testified that Nartron has not had  
4 a Pontiac, Michigan office for 15 or more years?

5 A. Well, this document had to be produced prior to the  
6 registration, otherwise it would have an R behind Smart  
7 Touch.

8 PETITIONER'S EXHIBIT 14  
9 WAS MARKED BY THE REPORTER  
10 FOR IDENTIFICATION

11 BY MR. TUTTLE:

12 Q. Can you identify Exhibit 14, Mr. Washeleski?

13 A. Yes. Another data sheet for a Smart Touch product.

14 Q. It also shows in the masthead at the top left, refers to  
15 a Pontiac, Michigan office?

16 A. Correct.

17 Q. Is it accurate that Nartron has not had a Pontiac,  
18 Michigan office for 15 or more years?

19 A. Yes.

20 Q. Does that assist you in placing this document in time as  
21 being 15 or more years old?

22 A. Yes.

23 PETITIONER'S EXHIBIT 15  
24 WAS MARKED BY THE REPORTER  
25 FOR IDENTIFICATION

1 BY MR. TUTTLE:

2 Q. Do you have Exhibit 15 before you?

3 A. Yes.

4 Q. Exhibit 15 --

5 MS. GIVAN: I'm going to object to the  
6 admission of this exhibit on the ground of authenticity,  
7 lack of foundation, and hearsay.

8 BY MR. TUTTLE:

9 Q. Do you recall having given a declaration previously in  
10 this proceeding, Mr. Washeleski?

11 A. Yes.

12 Q. Do you recall that Exhibit 15 was an exhibit to your  
13 declaration?

14 A. Yes.

15 Q. Have you, therefore, seen and reviewed Exhibit 15  
16 previously?

17 A. Yes.

18 Q. Do you see the reference to Cypress Semiconductor  
19 Corporation's "CapSense" Technology?

20 A. Yes.

21 Q. Does CapSense as described in this exhibit involve  
22 capacitive sensing?

23 MS. GIVAN: Objection, lack of foundation.

24 THE WITNESS: Yes.

25

1 BY MR. TUTTLE:

2 Q. In the middle of the first page, the fifth textual  
3 paragraph down, the sentence says, "Capacitive sensing  
4 is fast becoming the solution of choice for front-panel  
5 display and media control applications." Do you see  
6 that?

7 A. Yes.

8 Q. Does Nartron's Smart Touch technology involve capacitive  
9 sensing?

10 A. Yes.

11 Q. Do you see the second paragraph that says, "We are  
12 pleased to provide the CapSense solution to HP, a world  
13 leader in notebook computers", said Carl Brasek,  
14 business unit director for Cypress's CapSense products.  
15 "This usage model highlights one of the CapSense  
16 computer benefits -- the ability to perform additional  
17 functions on top of capacitive sensing."

18 Does Nartron's Smart Touch technology permit  
19 the performance of functions on top of capacitive  
20 sensing or through use of capacitive sensing?

21 A. When you were reading it, Bob, you made a mistake.  
22 Behind CapSense the word customer should have been used.  
23 I think you used a different word.

24 Q. Did I? I apologize.

25 MS. GIVAN: Well, the document speaks for

1           itself, so --

2                       MR. TUTTLE: We agree with that.

3 BY MR. TUTTLE:

4 Q.   Okay. Subject to that clarification, do you have the  
5       question in mind or would you like to hear it again?

6 A.   No, that's fine. I just wanted to state the obvious.

7 Q.   Okay.

8 A.   The answer to your question is yes.

9 Q.   In the third -- excuse me, the fourth paragraph under  
10      the heading About CapSense, the fourth paragraph, last  
11      sentence, it says, Cypress has garnered well over 100  
12      CapSense design wins worldwide in applications that  
13      include mobile handsets, portable media players, white  
14      goods, computers, printers and automotive, among others.  
15      Do you see that?

16 A.   Yes.

17 Q.   Does Nartron's Smart Touch technology have application  
18      in mobile handsets?

19 A.   Yes.

20 Q.   Does Nartron's Smart Touch technology have application  
21      in portable media players?

22 A.   Yes.

23 Q.   Does Nartron's Smart Touch technology have application  
24      in white goods, such as major appliances?

25 A.   Yes.

1 Q. Does Nartron's Smart Touch technology have application  
2 in computers?

3 A. Yes.

4 Q. Does Nartron's Smart Touch technology have application  
5 in printers?

6 A. Yes.

7 Q. Does Nartron's Smart Touch technology have application  
8 in automotive products?

9 A. Yes.

10 Q. Does Nartron's Smart Touch technology involve the use of  
11 electronic proximity sensors and switching devices?

12 A. Yes.

13 PETITIONER'S EXHIBIT 16

14 WAS MARKED BY THE REPORTER

15 FOR IDENTIFICATION

16 BY MR. TUTTLE:

17 Q. Mr. Washeleski, can you identify what the court reporter  
18 has marked as Exhibit 16, please.

19 A. It's a Nartron data sheet for a Smart Touch -- a  
20 different configuration product.

21 Q. Okay. It appears in the upper right as a keypad, part  
22 number 1310674. Are you familiar with this keypad  
23 referenced there?

24 A. Yes.

25 Q. Okay. What application -- well, excuse me.

1                   In the second paragraph, last sentence, it  
2                   says, Applications include the automobile IP, which  
3                   would mean instrument panel, radio, and HVAC controls.  
4                   Do you see that?

5    A.    Yes.

6    Q.    Okay. Does this Smart Touch keypad in fact have  
7           applications as described? That is automobile  
8           instrument panel, radio, and HVAC controls.

9    A.    Yes.

10                                PETITIONER'S EXHIBIT 17  
11                                WAS MARKED BY THE REPORTER  
12                                FOR IDENTIFICATION

13   BY MR. TUTTLE:

14   Q.    Mr. Washeleski, the court reporter has placed before you  
15           Exhibit 17, which appears on its face to be a copy of  
16           U.S. Patent Number 4,731,548. Do you recognize this  
17           document, sir?

18   A.    Yes.

19   Q.    Is this a Nartron patent?

20   A.    Yes.

21   Q.    And the title is Touch Control Switch Circuit. Do you  
22           see that?

23   A.    Yes.

24   Q.    Does the technical subject matter of this patent pertain  
25           to capacitive sensing?

1 A. Yes.

2 Q. Do you know the inventor, Ronald D. Ingraham -- I N G R  
3 A H A M?

4 A. Yeah. He reported to me.

5 Q. Does this patent record Nartron's early work in solid  
6 state switching?

7 A. Yes.

8 Q. Does this '548 patent of Exhibit 17 use capacitive  
9 sensing to determine -- let me reframe that.

10 I think I asked you, does the technical  
11 subject matter of this '548 patent use capacitive  
12 sensing?

13 A. Yes.

14 Q. Is there an electronic proximity sensor in the touch  
15 control switch circuit of Exhibit 17?

16 MS. GIVAN: Objection, vague, ambiguous.

17 THE WITNESS: Can you repeat the question?

18 MR. TUTTLE: Let's try from another direction.

19 BY MR. TUTTLE:

20 Q. Do you see the touch plate 12 called out there to the  
21 left, Figure 1?

22 A. Yes.

23 Q. Do you see the dashed lines indicating a capacitance to  
24 ground?

25 A. Yes.

1 Q. Does the switch plate 12 respond to the proximity of a  
2 person by sensing an altered capacitance?

3 MS. GIVAN: Objection, vague, ambiguous,  
4 leading.

5 THE WITNESS: Yeah. The user body is the  
6 capacitor, 42.

7 BY MR. TUTTLE:

8 Q. And then are there switching devices in the circuit of  
9 this '548 patent?

10 A. Yes.

11 MR. TUTTLE: Okay. We'll go to 18, please.

12 PETITIONER'S EXHIBIT 18

13 WAS MARKED BY THE REPORTER

14 FOR IDENTIFICATION

15 BY MR. TUTTLE:

16 Q. Could you identify what's been marked as Exhibit 18?

17 A. Yeah. This is the -- another version of Smart Touch as  
18 a touch pad.

19 Q. Is this a Nartron document?

20 A. Yes.

21 Q. Is this a Nartron marketing communication featuring  
22 Smart Touch sensing?

23 A. Yes.

24 Q. And how was Smart Touch sensing implemented in the  
25 product illustrated in this exhibit?

1 A. It's a solid state sensing through the plastic shown as  
2 the four pads in the middle of the two switches.

3 Q. Is the sensing of the proximity of the user's fingers  
4 shown in the two sub-frames at the lower right?

5 A. Yes.

6 Q. And then is there switching carried out by moving the  
7 windows up or down in response to the presence of the  
8 user's fingers?

9 A. Yes.

10 MR. TUTTLE: 19, please.

11 PETITIONER'S EXHIBIT 19

12 WAS MARKED BY THE REPORTER

13 FOR IDENTIFICATION

14 BY MR. TUTTLE:

15 Q. Could you identify what's been marked as 19, please.

16 A. It's another Nartron marketing data sheet.

17 Q. Are you familiar with the products called out in the  
18 illustrations in this document?

19 A. Yes.

20 Q. In the caption below the graphic it says, Smart Touch  
21 systems are intuitive, easy to use, and able to provide  
22 a variety of functions while driving. Do you see that?

23 A. Yes.

24 Q. Do the Smart Touch systems referred to here use  
25 electronic proximity sensors and switching devices?

1 A. Yes.

2 Q. In the text below that there's a heading, Key Features  
3 of Smart Touch Technology. Do you see that, sir?

4 A. Yes.

5 Q. Do you see the six bulleted items below that heading?

6 A. Yes.

7 Q. Are those all accurate?

8 A. Yes.

9 PETITIONER'S EXHIBIT 20  
10 WAS MARKED BY THE REPORTER  
11 FOR IDENTIFICATION

12 BY MR. TUTTLE:

13 Q. Have you seen Exhibit 20 previously, Mr. Washeleski?

14 A. Yes.

15 Q. In what context did you see it previously?

16 A. My declaration.

17 Q. Do you see on the cover page at the lower right there's  
18 a logo, HP?

19 A. Yes.

20 Q. Are you aware of HP, that is Hewlett Packard, having a  
21 presence in the automotive industry?

22 MS. GIVAN: Objection, lack of foundation.

23 THE WITNESS: Yes.

24 BY MR. TUTTLE:

25 Q. Would you go to the second page, please.

1                   On the second page is a photograph, and below  
2                   that two columns of text. Do you see that?

3    A.    Yes.

4    Q.    Could you give attention to the right column, the second  
5           sentence in the right column, which I'll read. "The  
6           end-to-end HP automotive industry portfolio includes  
7           complete solutions, as well as specific business  
8           technology capabilities, that range from data management  
9           to product lifecycle management, supply chain visibility  
10          and optimization to high performance computing solutions  
11          for design simulations, logistics and customer service  
12          to warranty management, and more. Just as importantly,  
13          HP has broad and deep experience in developing and  
14          implementing modular, standards-based technology  
15          solutions for automotive manufacturers worldwide, as  
16          well as proven global delivery capabilities that reduce  
17          the risks and time frames for deployment and  
18          integration." Do you see that?

19   A.    Yes.

20   Q.    Were you independently aware that HP, Hewlett Packard,  
21          has a presence in the automotive industry?

22                   MS. GIVAN: Objection, lack of foundation.

23                   THE WITNESS: I don't understand the question.

24                   MR. TUTTLE: Okay. We'll reframe.

25

1 BY MR. TUTTLE:

2 Q. Let's go to page three. Do you see the heading HP for  
3 Automotive?

4 A. Yes.

5 Q. Okay. HP technology and services are used by virtually  
6 all leading automotive manufacturers and their suppliers  
7 worldwide. Do you see that first sentence?

8 A. Yes.

9 Q. Okay. On the basis of what's recorded in this Exhibit  
10 20, do you see HP as a potential competitor in the  
11 automotive industry?

12 MS. GIVAN: Objection, lack of foundation.

13 THE WITNESS: Yes.

14 BY MR. TUTTLE:

15 Q. Continuing on that page, there's -- in the same column  
16 there's a heading that says Collaboration. The first  
17 sentence says, Automotive manufacturing is a deeply  
18 collaborative process; there's a strong emphasis on  
19 working with other OEMs and auto suppliers to develop  
20 alternative fuel vehicles, new powertrain designs, and  
21 in-vehicle electronics." Do you see that, sir?

22 A. Yes.

23 Q. Okay. Is Nartron working with OEMs for in-vehicle  
24 electronics?

25 A. Yes.

1 Q. Is that an important product line for Nartron?

2 A. Yes.

3 Q. Does Nartron have a presence under the Smart Touch  
4 trademark for in-vehicle electronics?

5 A. Yes.

6 PETITIONER'S EXHIBIT 21

7 WAS MARKED BY THE REPORTER

8 FOR IDENTIFICATION

9 MS. GIVAN: I'm going to object to the  
10 admission of this exhibit on the ground that it's  
11 incomplete.

12 MR. TUTTLE: Oh, want to speak to the whole  
13 10-K?

14 MS. GIVAN: If you want to.

15 MR. TUTTLE: It's your document.

16 MS. GIVAN: Well, right. And he doesn't  
17 really have any knowledge to testify about it.

18 MS. SHOVEIN: We'll make that available.

19 MR. TUTTLE: It's your document. You filed it  
20 under obligation of law.

21 MS. GIVAN: We didn't file that.

22 MR. TUTTLE: Anyway, if you want us to get the  
23 whole document, we will, believe me. We thought we'd do  
24 you a favor by giving you the abridged version. But if  
25 you honestly think there's something else on the

1 document that --

2 MS. GIVAN: I don't think there's anything in  
3 the document.

4 MR. TUTTLE: You're welcome to cross-examine  
5 him with the whole document under Rule 106.

6 BY MR. TUTTLE:

7 Q. Okay. Mr. Washeleski, do you have before you what's  
8 been marked as Exhibit 21?

9 A. Yes.

10 Q. Okay. Have you seen this document previously?

11 A. Yes.

12 Q. Okay. Would you go to the third page within the  
13 exhibit, and at the top right it's labeled page 1 of 2,  
14 and then the fourth page is labeled page 2 of 2. Do you  
15 have those before you, sir?

16 A. Yes.

17 Q. Do you recall this being an exhibit to the declaration  
18 you previously gave in this matter?

19 A. Yes.

20 Q. Do you see the bulleted items that appear across the  
21 third and fourth pages of this exhibit? The first one,  
22 for example, retailers that sell our products to the  
23 public through their own physical or Internet stores and  
24 so on?

25 A. Yes.

1 Q. Okay. And do you see the preamble of that referring to  
2 the partners include, and these being, in the context of  
3 this document, HP Partners. Do you see that, sir?

4 A. Yes.

5 Q. On the last page it refers to, the third bulleted item,  
6 last page, original equipment manufacturers that  
7 integrate our products with their own hardware or  
8 software to sell the integrated products?

9 A. Yes.

10 Q. Okay. Does Nartron have as its customers original  
11 equipment manufacturers that integrate Nartron's  
12 products with hardware or software to sell the  
13 integrated products?

14 A. Yes.

15 Q. For example, with Sanyo USA, does Nartron provide  
16 technology to Sanyo that's integrated with Sanyo  
17 products, including Sanyo's own hardware or software?

18 A. Yes.

19 Q. Do those products further find their way down the supply  
20 chain into the automobiles of the original equipment  
21 manufacturers?

22 MS. GIVAN: Objection, vague, ambiguous.

23 THE WITNESS: Yes.

24 MR. TUTTLE: Okay. We'll go to 22, please.

25

1                   PETITIONER'S EXHIBIT 22  
2                   WAS MARKED BY THE REPORTER  
3                   FOR IDENTIFICATION

4 BY MR. TUTTLE:

5 Q. Mr. Washeleski, the court reporter's placed before you  
6 what has been marked as Exhibit 22. Do you recall  
7 seeing this previously, sir?

8 A. Yes.

9 Q. Do you recall seeing it previously as an exhibit to the  
10 declaration you gave in this matter?

11 A. Yes.

12 Q. Do you recognize it as a summary of proceedings before  
13 the Trademark Trial and Appeal Board concerning Smart  
14 Touch?

15 A. Yes.

16 Q. Okay. With the exception of the present proceeding,  
17 which is the second item, is it accurate to state that  
18 these other proceedings have been resolved favorably to  
19 Nartron?

20 A. Yes.

21                   MR. TUTTLE: Go to the next exhibit, please.

22                   PETITIONER'S EXHIBIT 23  
23                   WAS MARKED BY THE REPORTER  
24                   FOR IDENTIFICATION

25

1 BY MR. TUTTLE:

2 Q. Mr. Washeleski, can you identify Exhibit 23?

3 A. Yes. It is an article from the Internet.

4 Q. And is it a download from the Detroit Free Press?

5 MS. GIVAN: Objection, lack of foundation.

6 THE WITNESS: Yes.

7 BY MR. TUTTLE:

8 Q. And you see the title, GM Gives \$2 Billion Dollar

9 Contract to Hewlett Packard? Do you see that, sir?

10 A. Yes.

11 Q. Is General Motors a customer of Nartron for Smart Touch  
12 products?

13 A. Yes.

14 MR. TUTTLE: Okay. The next one, please.

15 PETITIONER'S EXHIBIT 24

16 WAS MARKED BY THE REPORTER

17 FOR IDENTIFICATION

18 BY MR. TUTTLE:

19 Q. Do you have Exhibit 24 before you, sir?

20 A. Yes.

21 Q. Do you see the logo HP at the upper left?

22 A. Yes.

23 Q. Do you recognize that as Hewlett Packard?

24 A. Yes.

25 Q. Do you see the URL at the bottom left? It goes

1 h30261.www3.hp.com, et cetera. Do you see that?

2 A. Yes.

3 Q. Do you recognize that as coming from the HP website?

4 A. It appears so.

5 Q. Do you see the title of the article, General Motors  
6 Renews \$2 Billion HP Enterprise Services Agreement  
7 Supporting Vehicle Design and Production?

8 A. Yes.

9 Q. Was Nartron involved with General Motors in supporting  
10 vehicle design and production with its Smart Touch  
11 products?

12 A. Yes.

13 MR. TUTTLE: Go to the next one, please, 25.

14 PETITIONER'S EXHIBIT 25

15 WAS MARKED BY THE REPORTER

16 FOR IDENTIFICATION

17 BY MR. TUTTLE:

18 Q. Do you have before you Exhibit 25, sir?

19 A. Yes.

20 Q. Okay. Do you see the masthead where it says Connect?

21 A. Yes.

22 Q. Okay. And below that are some links of cross-hairs for  
23 Enterprise Software, Inside the Data Center, Networking,  
24 et cetera. Do you see those below that?

25 A. Yes.

1 Q. And below that it says, Channel HP: Enterprise Business  
2 Blogs: Services: The Next Big Thing: HP in the Motor  
3 City. Do you see that, sir?

4 A. Yes.

5 Q. And then do you see the heading below that, HP in the  
6 Motor City, followed by an article, a one-paragraph  
7 article?

8 A. Yes.

9 Q. Okay. In the article, the fourth line, do you see the  
10 following sentence, "HP will play an important part in  
11 General Motors' future." Do you see that?

12 A. Yes.

13 Q. Does Nartron hope to play an important part of General  
14 Motors' future with its Smart Touch products?

15 A. Yes.

16 PETITIONER'S EXHIBIT 26

17 WAS MARKED BY THE REPORTER

18 FOR IDENTIFICATION

19 BY MR. TUTTLE:

20 Q. Do you have before you Exhibit 26, sir?

21 A. Yes.

22 Q. Do you see the masthead at the top with the logo HP and  
23 the term HP Enterprise Services?

24 A. Yes.

25 Q. Do you recognize this as an HP or a Hewlett Packard

1 document?

2 A. Yes.

3 Q. In the body of the document on the first page, in the  
4 middle is a heading, The Capabilities You Need. Do you  
5 see that heading near the middle of the first page?

6 A. Yes.

7 Q. The first sentence says in relevant part, Currently, HP  
8 works with 21 of the top 25 global automakers, et  
9 cetera. Do you see that text, sir?

10 A. Yes.

11 Q. Does Nartron work with global automakers?

12 A. Yes.

13 Q. Does Nartron work with global automakers with its Smart  
14 Touch products?

15 A. Yes.

16 Q. Does Nartron work with Ford Motor Company?

17 A. Yes.

18 Q. Does Nartron work with Chrysler, LLC?

19 A. Yes.

20 Q. Does Nartron work with other global automakers as well?

21 A. Yes.

22 Q. Does that work include Nartron Smart Touch products?

23 A. Yes.

24 MR. TUTTLE: Go to the next exhibit, please.

25

1 PETITIONER'S EXHIBIT 27

2 WAS MARKED BY THE REPORTER

3 FOR IDENTIFICATION

4 BY MR. TUTTLE:

5 Q. Do you have Exhibit 27 before you, Mr. Washeleski?

6 A. Yes.

7 Q. Can you identify Exhibit 27?

8 A. It's an HP downloaded document.

9 Q. In the text of the body of the document, the first  
10 paragraph, there's reference to CAE Simulations. Do you  
11 see that, sir?

12 A. Yes.

13 Q. Okay.

14 MS. GIVAN: I'm sorry, can you --

15 MR. TUTTLE: Sure. CAE Simulations, first  
16 paragraph, fourth line.

17 THE WITNESS: Okay. Yeah.

18 BY MR. TUTTLE:

19 Q. Does CAE stand for Computer-Aided Engineering?

20 A. Yes.

21 Q. Does Nartron involve itself with Computer-Aided  
22 Engineering?

23 A. Yes.

24 Q. Does Nartron's experience based in Computer-Aided  
25 Engineering reach to its Smart Touch products?

1 A. Yes.

2 MS. GIVAN: Objection, vague, ambiguous.

3 PETITIONER'S EXHIBIT 28

4 WAS MARKED BY THE REPORTER

5 FOR IDENTIFICATION

6 BY MR. TUTTLE:

7 Q. Do you have Exhibit 28 before you, sir?

8 A. Yes.

9 Q. Do you recognize what Exhibit 28 is? Can you identify  
10 it?

11 A. It appears to be an HP document.

12 Q. Okay. Could you go to the third page, please? Do you  
13 see the heading, Meeting Today's Challenges With  
14 Experience and Innovation?

15 A. Yes.

16 Q. In the second and third lines is the phrase "HP works  
17 with companies in this industry, from OEMs to suppliers,  
18 and understands the most pressing challenges of the  
19 industry". Do you see that language, sir?

20 A. Yes.

21 Q. Does Nartron work with companies in the automotive  
22 industries from OEMs to suppliers?

23 A. Yes.

24 Q. Does Nartron work with companies in the automotive  
25 industry from OEM's to suppliers in connection with its

1 MR. TUTTLE: Okay. Would you like to take a  
2 break at this time?

3 MS. GIVAN: Sure. Just give me five minutes.

4 (A short recess was taken)

5 EXAMINATION BY MS. GIVAN:

6 Q. How many people work at Nartron?

7 A. I don't recall the actual number. It changes based on  
8 customer orders.

9 Q. Can you give an approximate amount, a range?

10 A. Between 100 and 150.

11 Q. And does it now just have the one office in Reed City?

12 A. Yes.

13 Q. Does Nartron have a sales department or division?

14 A. Yes.

15 Q. And have you ever worked in that division?

16 A. No.

17 Q. Do you have any contact with the people who work in that  
18 division?

19 A. Yes.

20 Q. And how much would you say?

21 A. Daily.

22 Q. And does Nartron have a marketing division?

23 A. Yes.

24 Q. Do you interact with the people in the marketing  
25 division at all?

1 A. Yes.

2 Q. And how much?

3 A. I provide the technical detail for the data sheets to  
4 them.

5 Q. Were you involved in Nartron's initial selection of  
6 Smart Touch as a mark for use in switches and electronic  
7 proximity sensors?

8 A. No.

9 Q. Now, you've been talking a good bit about electronic  
10 proximity sensors. Can you explain exactly what an  
11 electronic proximity sensor is?

12 MR. TUTTLE: Objection, form.

13 BY MS. GIVAN:

14 Q. Do you know what an electronic proximity sensor is?

15 A. Yes. It's an electronic device that measures an object  
16 by a distance.

17 Q. So an electronic proximity sensor is a component part  
18 that will be integrated into other products, product  
19 applications, is that correct?

20 A. In some cases, yes.

21 Q. Well, if I had an electronic proximity sensor sitting  
22 here on the table by itself, could it do anything?

23 MR. TUTTLE: Objection, indefinite  
24 hypothetical.

25

- 1 BY MS. GIVAN:
- 2 Q. You can answer the question.
- 3 A. It would do something, whether or not you would know it  
4 was doing it, but it would be doing it.
- 5 Q. Who buys Nartron's electronic proximity sensors?
- 6 A. Our customers.
- 7 Q. Right. Are your customers the makers of products who  
8 then incorporate those sensors into their products?
- 9 A. Yes.
- 10 Q. And after a maker of one of those products decides that  
11 they're going to buy some of Nartron's electronics  
12 proximity sensors, does Nartron and that customer  
13 typically collaborate to ensure a successful  
14 integration?
- 15 A. Yes and no.
- 16 Q. Could you explain what you mean by that?
- 17 A. We have products that we manufacture and the customer  
18 buys them as is and installs them, just does its thing.
- 19 Q. Do you ever modify your -- modify or augment Nartron's  
20 electronic proximity sensors to work with a particular  
21 customer's type of product?
- 22 A. Yes.
- 23 Q. And when you do that modification, are you working with  
24 the customer to ensure that that modification goes  
25 successfully?

1 A. Yes.

2 Q. How long would that process typically take?

3 A. Years sometimes. Sometimes hours. Depends on what it  
4 is.

5 Q. Are electronic proximity sensors generally sold in bulk?

6 MR. TUTTLE: Objection, form, indefinite.

7 THE WITNESS: I guess I don't understand your  
8 question.

9 BY MS. GIVAN:

10 Q. Well, when one of these makers of a product wants to  
11 incorporate your sensors into their product, do they  
12 typically buy just the one sensor, or would they buy  
13 hundreds or thousands?

14 A. Depends on the vehicle application. Sometimes they buy  
15 one, sometimes they buy -- if we're lucky they buy a  
16 thousand an hour, and we're happy.

17 Q. Can you give an example of when a customer has bought  
18 just the one sensor?

19 A. Yeah. We sell a product for fire rescue, and the  
20 customer will buy one of our command and control  
21 centers, which has Smart Touch on it.

22 Q. I'm sorry, can you say that again?

23 MS. GIVAN: Can you read back the testimony?

24 (Record repeated as requested)

25

1 BY MS. GIVAN:

2 Q. So Nartron sells a -- I guess I'm a little bit confused.

3 A customer might buy a fire rescue control  
4 center, but they're not buying one Smart Touch  
5 electronic proximity sensor, they're buying the product  
6 itself, right, which has that incorporated in it?

7 MR. TUTTLE: Objection to form, indefinite.

8 BY MS. GIVAN:

9 Q. What's typically the cost per unit of your electronic  
10 proximity sensors?

11 A. Depends on the number of inputs.

12 Q. Well, can you give me an example? If a customer was  
13 going to order, you know, several thousand sensors, how  
14 expensive would that be?

15 A. Like I said, depends on the application. It could be  
16 from \$10 to \$20 dollars, to hundreds and hundreds of  
17 dollars.

18 Q. When you say \$10 to \$20 dollars you mean \$10 to \$20  
19 dollars per sensor?

20 A. No. Per product.

21 Q. Okay. How much does a sensor cost?

22 A. It's not priced that way. Price is an application.  
23 Some may have two or three sensors part of it, or up to  
24 hundreds of sensors part of it.

25 Q. Is Nartron currently selling electronic proximity

- 1 sensors under the Smart Touch brand?
- 2 A. Yes.
- 3 Q. And how many Smart Touch electronic proximity sensors
- 4 has Nartron sold this year?
- 5 A. I don't have the numbers.
- 6 Q. Can you give me an estimate?
- 7 A. No.
- 8 Q. Have they sold any?
- 9 A. Yes.
- 10 Q. Have they sold more than a million?
- 11 A. No.
- 12 Q. More than 100?
- 13 A. I would assume, yes.
- 14 Q. What customers have bought electronic proximity sensors
- 15 from Nartron this year?
- 16 A. I don't have a list of all the customers.
- 17 Q. Can you name one?
- 18 A. E1.
- 19 Q. E1?
- 20 A. Um-hum (affirmatively).
- 21 Q. Who is E1?
- 22 A. Fire truck manufacturer.
- 23 Q. Can you name another customer for Nartron's electronic
- 24 proximity sensors?
- 25 A. Ford.

1 Q. How long has Ford been a customer of Nartron's  
2 electronic proximity sensor sold under the Smart Touch  
3 mark?

4 A. I don't know that.

5 Q. Are they currently a customer?

6 A. Yes.

7 Q. How long has El been a customer?

8 A. More than 10 years.

9 Q. Can you name another customer?

10 A. Not off the top of my head.

11 Q. Do you know how many customers total Nartron has for its  
12 electronic proximity sensors sold under the Smart Touch  
13 mark?

14 MR. TUTTLE: Objection, asked and answered.

15 THE WITNESS: No.

16 BY MS. GIVAN:

17 Q. Do you know if it's more than 10?

18 A. No.

19 Q. Is it less than 10?

20 A. I don't know.

21 Q. I think you testified earlier that you interact with  
22 customers daily, is that correct?

23 A. Yes.

24 Q. But sitting here today you can't remember any other  
25 customers for Nartron's electronic proximity sensors

1 under the Smart Touch mark other than El and Ford?

2 A. Most of my customer interface are with new customers for  
3 future products, which are confidential.

4 Q. Well, I think we have a protective order in this case.

5 Are there any other customers that are buying  
6 electronic proximity sensors under the Smart Touch mark  
7 right now?

8 MR. TUTTLE: Objection, asked and answered.

9 THE WITNESS: Yeah, I'm sure there is. I just  
10 don't have their names with me.

11 BY MS. GIVAN:

12 Q. And you can't remember who any of them are?

13 A. The ones that I know I told you. I'm not going to say  
14 ones I don't know.

15 Q. Okay. What does Ford buy Nartron's electronic proximity  
16 sensors for?

17 A. For solid state sensing and switching.

18 Q. And what application does that have in their products?

19 A. For displays, centerstacks, switching.

20 Q. And that's for use in their -- Ford's automobiles, is  
21 that correct?

22 A. Yes.

23 Q. How many electronic proximity sensors has Ford bought  
24 from Nartron?

25 A. Just a handful at this time.

1 Q. If a customer was going to buy a single electronic  
2 proximity sensor from you, how much would that cost?

3 A. Depends on the system, what they wanted to do.

4 Q. Why does it depend on what they want to do?

5 A. A lot of times a lot of software's involved in it.

6 Q. Is that software something that Nartron would put  
7 together?

8 A. Yes.

9 Q. So that would be part of the collaborative process of  
10 making sure that your sensors worked with their product?

11 MR. TUTTLE: Objection to form.

12 THE WITNESS: Part of it.

13 BY MS. GIVAN:

14 Q. What would be the other part?

15 A. The basic operation of the product itself, the Ford  
16 interfaces to the customer's product.

17 Q. Can you explain what a switching device is?

18 A. A switching device?

19 Q. Yes.

20 A. It's a -- it passes electrons from one potential to  
21 another.

22 Q. Who makes use of switching devices?

23 A. Switching devices are used by a lot of people.

24 Q. For what?

25 A. Controlling the electron flow.

1 Q. And why would they want to do that?

2 A. To control an object.

3 Q. Such as?

4 A. A keyboard is a good example, any device that moves, is  
5 one method. The other one is a solid state device that  
6 has no moving parts.

7 Q. Is a switching device a part that's integrated into  
8 other products then, like a keyboard?

9 A. In some cases, yes.

10 Q. And would it be the makers of those products that  
11 incorporate the switching devices who buy the switching  
12 devices from you?

13 A. No.

14 Q. Well, who does buy switching devices from you?

15 A. Our customers. We provide an output to them that  
16 controls the electron flows that they use to control an  
17 object.

18 Q. Do your customers typically understand how switching  
19 devices are used?

20 A. Some do, some don't.

21 Q. Do your customers typically have experience with  
22 electronics and technology?

23 A. Some do, some don't.

24 Q. Can you give me an example of a customer who doesn't?

25 A. An end customer that buys a product, puts it on his

1 vehicle, it works. He don't care how it works.

2 Q. Would an end customer buy a switching device from you?

3 A. Typically they'll buy it through a distributor.

4 Q. How much does a switching device cost?

5 A. Depends on the product.

6 Q. Can you give me a range?

7 A. I already did.

8 Q. I must have forgotten. Can you -- actually when we were  
9 talking earlier we were talking about electronic  
10 proximity sensors.

11 What's a range you can give me for switching  
12 devices?

13 A. From -- if you look at a simple transistor, from pennies  
14 to, if you want to switch 200 amps, now you're into  
15 hundreds of dollars.

16 Q. Is Nartron currently selling switching devices under the  
17 Smart Touch brand?

18 A. Proximity and sensing and switching devices, yes.

19 Q. Are switching devices sold separately from electronic  
20 proximity sensors?

21 A. Yes.

22 Q. And does Nartron separately sell switching devices under  
23 the Smart Touch brand?

24 A. No. That's Smart Power.

25 Q. So does Nartron sell electronic proximity sensors and

1 switching devices together under the Smart Touch mark?

2 A. Yes.

3 Q. Can you give me an example of a device that Nartron  
4 sells that incorporates both an electronic proximity  
5 sensor and a switching device?

6 A. Yeah. Our Smart Touch product.

7 Q. And what is that product?

8 A. Proximity sensing and controlled output for switching  
9 when a person's detected.

10 Q. So this product is an electronic proximity sensor that  
11 has switching devices incorporated into it?

12 A. Yes.

13 Q. Does Nartron advertise its electronic proximity sensors  
14 and switching devices sold under the Nartron mark?

15 A. I don't understand your question.

16 Q. What don't you understand? Do you not understand the  
17 word advertise?

18 A. I don't understand your whole question. It doesn't make  
19 any sense to me.

20 Q. Okay. You've testified that Nartron has a Smart Touch  
21 product that constitutes electronic proximity sensor and  
22 switching devices. Does Nartron advertise that product  
23 under the Smart Touch mark?

24 A. Yes.

25 Q. Does it do so on television?

- 1 A. Not that I'm aware of.
- 2 Q. What about print ads?
- 3 A. Yes.
- 4 Q. And where would those print ads appear?
- 5 A. In magazines.
- 6 Q. What kind of magazines?
- 7 A. Trade magazines, Automotive News.
- 8 Q. Do you advertise the Smart Touch product in trade shows?
- 9 A. Yes.
- 10 Q. What kind of trade shows?
- 11 A. Interior trade shows, SAE.
- 12 Q. Any others you can think of?
- 13 A. Probably is, I just don't recall.
- 14 Q. I'd like to ask you to look at Exhibit 13.
- 15 A. I have it in front of me.
- 16 Q. So I think you testified a little bit about this  
17 document earlier. Is it correct that this document is  
18 over 15 years old?
- 19 A. This is a photocopy, it's not that old.
- 20 Q. I think you know what I mean.
- 21 A. The original document, yes, is over 15 years old.
- 22 Q. Looking at the first page of it, at the top it says,  
23 Over the past 20 years Nartron has developed a deep  
24 commitment and performance capability to help you meet  
25 the challenge. And then at the bottom it says, We

1 welcome your use of our capabilities as we support your  
2 success.

3 Do you know who the you and your this document  
4 is referencing is?

5 A. No.

6 Q. Do you know if this document is a document that's  
7 internal to Nartron, or if it's meant for external use?

8 A. External use.

9 Q. And do you know who the targeted audience is?

10 A. Our customers.

11 Q. And are Nartron's customers other businesses and  
12 manufacturers of products?

13 A. Can you repeat the question?

14 Q. Are your customers other businesses and manufacturers of  
15 products?

16 A. Yes.

17 Q. So you said this document was meant for external use.  
18 Do you know where this document would have gone to reach  
19 external people?

20 A. It's typically sent in our introduction, when we  
21 introduce ourselves to our customers.

22 Q. In what context do you typically introduce yourself to  
23 customers?

24 A. When a customer calls us or we run into a customer at a  
25 trade show. It's not a -- it could be existing

1 customer, just a new product.

2 Q. Okay. So if it was an existing customer, would this be  
3 something that you might mail to them?

4 A. Probably not.

5 Q. How would they then get it?

6 A. They probably already have it from our initial  
7 introduction.

8 Q. Okay. If you'll look at Exhibit 14. I believe this is  
9 another document that you said is quite old, is that  
10 correct?

11 A. Yes.

12 Q. Was this data sheet created for internal or external  
13 use?

14 A. External use.

15 Q. And who's the targeted audience?

16 A. Customers.

17 Q. So if you look at the bottom paragraph, it says, Highly  
18 skilled professionals at Nartron are ready to meet any  
19 specific applications. Immersed in a creative at  
20 atmosphere coupled with advanced CAE and CAD  
21 laboratories and simulation systems, we are prepared to  
22 design a Smart Touch system to meet your requirements.

23 Is this a reference to the collaborative  
24 process between Nartron and its customers in  
25 incorporating your devices into their products?

1 MR. TUTTLE: Objection to form, indefinite.

2 THE WITNESS: As part of the process. Some of  
3 it is just styling of the product, some of it is  
4 functions of the product.

5 BY MS. GIVAN:

6 Q. Do you know how this data sheet was distributed? Is it  
7 something that would go in the introduction packet like  
8 Exhibit 13?

9 A. Yes.

10 Q. Does Nartron make sales of its Smart Touch products  
11 through directly negotiated agreements with its  
12 customers?

13 A. In some cases, yes.

14 Q. How long is the sales -- excuse me, strike that.  
15 How long is the sales cycle?

16 MR. TUTTLE: Objection, form, indefinite.

17 THE WITNESS: Depends on the -- who the  
18 customer is, and what they want to do with it.

19 BY MS. GIVAN:

20 Q. Okay. Well, let's say, for example, that an automobile  
21 maker approached Nartron and said we're interested in  
22 using your Smart Touch product in our -- what did you  
23 call -- the centerstack area. From the point of first  
24 contact when a customer and you first interact to the  
25 point where the customer actually places an order for

- 1 your product, how long would that take?
- 2 A. In some cases a year. In some cases month. It depends  
3 on what model year they decide to launch it in.
- 4 Q. Can people buy your products directly from the Internet?
- 5 A. I don't know.
- 6 Q. Do customers place orders over the phone?
- 7 A. I don't know.
- 8 Q. When a customer places an order, is there typically a  
9 contract that's signed between Nartron and the customer?
- 10 A. In some cases, yes.
- 11 Q. Does Nartron have a contract with E1?
- 12 A. Purchase order.
- 13 Q. Does Nartron have a contract with Ford?
- 14 A. Not yet. I'll know next week.
- 15 Q. So let me go back to your website. Is it possible to go  
16 to your website and you press a button and order your  
17 products right there on the website?
- 18 A. I don't know.
- 19 Q. Are Nartron's electronic proximity sensors and switching  
20 devices sold at Best Buy?
- 21 A. No.
- 22 Q. Office Depot?
- 23 A. Not that I'm aware of.
- 24 Q. Target or WalMart?
- 25 A. No.

1 Q. Are Nartron's electronic proximity sensors and switching  
2 devices available for sale by a catalogue?

3 A. Yes.

4 Q. What kind of catalogue?

5 A. A distributor's catalogue.

6 Q. And who are those distributors?

7 A. I don't -- I don't know off the top of my head.

8 Q. Do you know where those distributor catalogues go, where  
9 they are?

10 A. No.

11 Q. So we've talked about El and Ford. Can you identify any  
12 other customer for Nartron's Smart Touch electronic  
13 proximity sensors and switching devices?

14 MR. TUTTLE: Objection, asked and answered,  
15 twice now.

16 THE WITNESS: Not off the top of my head.

17 BY MS. GIVAN:

18 Q. You were looking earlier at a confidentiality agreement  
19 between Nartron and GE. That was one of the exhibits.  
20 We don't have to go to it. I just wanted to ask you  
21 whether it's -- would Nartron typically enter into  
22 confidentiality agreements with potential customers when  
23 they're developing something or evaluating a potential  
24 sale?

25 A. Yes.

- 1 Q. Is Sanyo a current customer of Nartron's?
- 2 A. Yes.
- 3 Q. Do they buy Nartron Smart Touch electronic proximity  
4 sensors and switching devices?
- 5 A. Yes.
- 6 Q. And how long have they been a customer?
- 7 A. A couple years.
- 8 Q. Is Chrysler a current customer of Nartron?
- 9 A. Hope to be.
- 10 Q. Are they currently?
- 11 A. We sold prototypes to them.
- 12 Q. I'm sorry?
- 13 A. We sold prototypes to them, Chrysler.
- 14 Q. Is that concept car you were discussing earlier, is that  
15 something that's actually been sold in the marketplace,  
16 or is it just a concept right now?
- 17 A. The vehicle's a concept, but the product is going to be  
18 coming out in a model year that they don't want me to  
19 talk about, or a vehicle.
- 20 Q. If could you look at Exhibit 6 briefly. I think you  
21 said earlier this is a magazine article from May '09.  
22 Do you know what magazine this is, AEI?
- 23 A. I'd have to look at the actual magazine.
- 24 Q. So AEI is not a magazine you're familiar with at this  
25 time?

- 1 A. I'm familiar, I just know it as AEI. I don't know what  
2 it stands for.
- 3 Q. Do you know what kind of magazine it is?
- 4 A. Yeah. It's for automotive industry.
- 5 Q. Look at Exhibit 7. I think you said earlier that this  
6 is a Nartron sheet of applications, is that correct?
- 7 A. Yes.
- 8 Q. Is this an internal document, or is it meant for  
9 external use?
- 10 A. External use.
- 11 Q. And who would you send this to?
- 12 A. Our customers for automotive applications.
- 13 Q. So would that be customers like Sanyo, Ford, other  
14 makers of automobiles?
- 15 A. Or Tier 1's.
- 16 Q. What are Tier 1's?
- 17 A. Tier 1's are system integrators for components.
- 18 Q. Components of what?
- 19 A. The automobile.
- 20 Q. How does Nartron distribute Exhibit 7 to customers and  
21 potential customers?
- 22 A. By mail or e-mail, electronic. And then in person,  
23 putting it in their hand.
- 24 Q. All right. And would that be at things like auto trade  
25 shows?

1 can get in the market share, they can advertise and  
2 market their vehicle. Everybody's looking for a new  
3 wow, everybody wants a new synch. And so we bring in  
4 sample products to them. And we're not even getting  
5 with the visionary people versus the normal engineer  
6 going and doing what daddy told them to do.

7 Q. Can it sometimes take several meetings to convince a  
8 potential customer to do a certain thing or go in a  
9 certain direction?

10 A. Sometimes it's one meeting, sometimes you're dealing  
11 with the wrong person, they'll never get there.

12 MS. GIVAN: I'm done.

13 MR. TUTTLE: All right. Very good. Thank  
14 you. We don't have anything further, and we'll close  
15 the record.

16 We want to read and sign the transcript.

17 MS. GIVAN: I offer that into evidence. I  
18 guess I didn't formally say that during -- the last  
19 exhibit that I offered.

20 MR. TUTTLE: All right. We can put that on  
21 the record, we agree that you offered Exhibit 100 into  
22 evidence.

23 All right. Thank you.

24 MS. GIVAN: Thank you for your time.

25 (The deposition was concluded at 3:55 p.m.)

**ERRATA SHEET**

*Nartron Corporation v. Hewlett-Packard Development Company, L.P.*

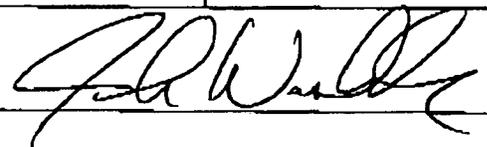
NAR 02210C

Deposition Date: 9/2/10

I, **JOHN WASHELESKI**, wish to make the following changes to the record:

	PAGE	LINE	CHANGE	TO
1	10	6	25 Miles north of Cadillac, Michigan is Reed City.	25 Miles north of Reed City is Cadillac, Michigan
2	10	20	NPA	MPA
3	19	20	Samuel	SANYO
4	19	23	Samuel	SANYO
5	20	1	Samuel	SANYO
6	20	3	Samuel	SANYO
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Date: 10/11/2010

Signed: 

John Washeleski

9/2/2010

(Pages 78 to 81)

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Page 80

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I have reviewed the above transcript and have listed corrections, if any, on the attached errata sheet, this 11th day of October, 2010.

SIGNATURE OF THE WITNESS

SUBSCRIBED AND SWORN to before me this 11th day of October, 2010.

NOTARY PUBLIC

My Commission expires: November 11, 2013

H. HUBER  
NOTARY PUBLIC, STATE OF MI  
COUNTY OF OSCEOLA  
MY COMMISSION EXPIRES Nov 11, 2013  
ACTING IN COUNTY OF Osceola

Page 79

Page 81

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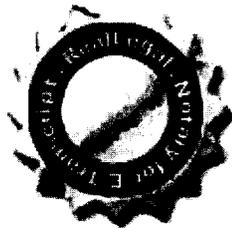
CERTIFICATE OF NOTARY  
STATE OF MICHIGAN )  
) SS  
COUNTY OF MACOMB )  
T. LAIRA T. STEENBERGH Certified Shorthand

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CERTIFICATE OF NOTARY

STATE OF MICHIGAN            )  
  ) SS  
COUNTY OF MACOMB            )

I, LAURA J. STEENBERGH, Certified Shorthand Reporter, a Notary Public in and for the above county and state, do hereby certify that the above deposition was taken before me at the time and place hereinbefore set forth; that the witness was by me first duly sworn to testify to the truth, and nothing but the truth, that the foregoing questions asked and answers made by the witness were duly recorded by me stenographically and reduced to computer transcription; that this is a true, full and correct transcript of my stenographic notes so taken; and that I am not related to, nor of counsel to either party nor interested in the event of this cause.



*Laura Steenbergh*

LAURA J. STEENBERGH  
CSR 3707 Notary Public,  
Macomb County, Michigan

My Commission expires: 2/14/15

UNITED STATES PATENT AND TRADEMARK OFFICE  
TRADEMARK TRIAL AND APPEAL BOARD

NARTRON CORPORATION

Petitioner,

v.

Cancellation No. 92050789

HEWLETT-PACKARD  
DEVELOPMENT COMPANY, L.P.,

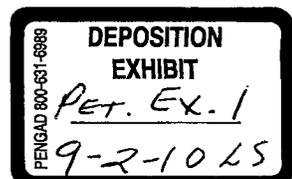
Respondent.

\_\_\_\_\_ /

**PETITIONER'S AMENDED NOTICE OF TAKING TESTIMONY**

PLEASE TAKE NOTICE that pursuant to 37 C.F.R. 2.123 and Rule 30 of the Federal Rules of Civil Procedure, Petitioner Nartron Corporation will take the testimony deposition upon oral examination of John Washeleski on Thursday, September 2, 2010 at 1:00 PM EDT / 10:00 AM PDT at the offices of Brooks Kushman, P.C., 1000 Town Center, Twenty-Second Floor, Southfield MI, 48075. The deposition will be recorded stenographically.

You are invited to attend and participate via video conference, or in other manner provided by the Federal Rules of Civil Procedure.



For participation via video conference, the I.P. address of Brooks Kushman's video conference system is 74.204.24.205. The Brooks Kushman conference room telephone number is 248-226-2905. Prior to the day of the deposition, please provide Brooks Kushman with the I.P. address of your teleconference system, and a telephone number of the conference room where you will be attending the deposition.

**BROOKS KUSHMAN P.C.**

By: Hope Shovein

**ROBERT C.J. TUTTLE**  
**HOPE V. SHOVEIN**  
1000 Town Center,  
Twenty-Second Floor  
Southfield, Michigan 48075  
(248) 358-4400

*Attorneys for Petitioner*

Dated: August 10, 2010

CERTIFICATE OF SERVICE

I certify that I served:

**PETITIONER'S AMENDED NOTICE OF TAKING TESTIMONY**

on August 10, 2010 by:

delivering

mailing (via First-Class mail)

a copy to:

MARTIN R. GLICK  
DIANA D. DiGENNARO  
HOWARD, RICE, NEMEROVSKI,  
CANADY, FALK & RABKIN  
Three Embarcadero Center  
Seventh Floor  
San Francisco, CA 94111

*Attorneys for Respondent*

Hope Shover



5000 NORTH US-131 · REED CITY, MI 49677  
(231) 832-5525 · www.nartron.com

iQ Power™ System

### GENERAL DESCRIPTION

Virtual Touchpad™ sensing is a breakthrough in human interface technology. Wide design freedom in instrument panel (and other interior locations) styling/function is instantly achieved. Curved contours firmware are reconfigurable and provide direct access to computer power, such as with highly successful handheld devices. By combining the 1) reconfigurable centerstack with 2) touchpanel, 3) connected vehicle communications and 4) optional voice command, brings the “iPhone-type” product to the cockpit for the very first time.

iQ Power™ allows a person to use fingers to control computer software through a touchscreen. A key feature of Smart Touch® allows for multiple touches simultaneously or sliding fingers across a screen.\* Applications include the automobile IP, radio and HVAC controls.

### FEATURES

- Integrated faceplate panel and capacitive Smart Touch® pad with sensor electronics
  - 1) unique and patented hardware-software provides under 30 millisecond operations.
  - 2) serial communications to display controller (RS232, Sharp or others).
  - 3) is a totally solid state design featuring (a) proximity sensing (b) touch implementation inherent within the technology. No moving parts, longer life.
  - 4) sense and control through nonconductive covering material such as glass, plastic, wood, etc., works through metallic painted surfaces.
  - 5) may incorporate multiple-input sensing, slewing of touch area, and automatic shutdown or lockout function.
  - 6) can operate on AC or DC. Controls resistive as well as inductive loads. The versatile system can control fluorescent fixtures and electric motors.
  - 7) uniquely lends itself to multiplex systems since its solid-state switching operates at logic levels and can interface directly with electronic controllers.
- High density “virtual keyboard” (8” touchscreen display area with 30 discrete touchpads) allows compact control configurations, weighs less.
- Centerstack is sealed at vehicle IP assembly for operation at all humidity-dust levels.
- Switch function is independent of surface graphics and provides a new level of design freedom since the overlay surface is not part of the switch. Deadfront backlit applications are optional.
- Touchpads can be configured in another matrix, or individual inputs, in combination.
- Anti-glare, anti-reflective coating.

Integrated SENSE - COMPUTE - CONTROL Systems

\*covered under one or more Nartron patents: 4,731,548; 4,758,735; 4,831,279; 5,087,825; 5,796,183; 5,952,801; 7,503,498  
Smart Touch® and sense-compute-control® are registered trademarks of Nartron Corporation

DEPOSITION  
EXHIBIT

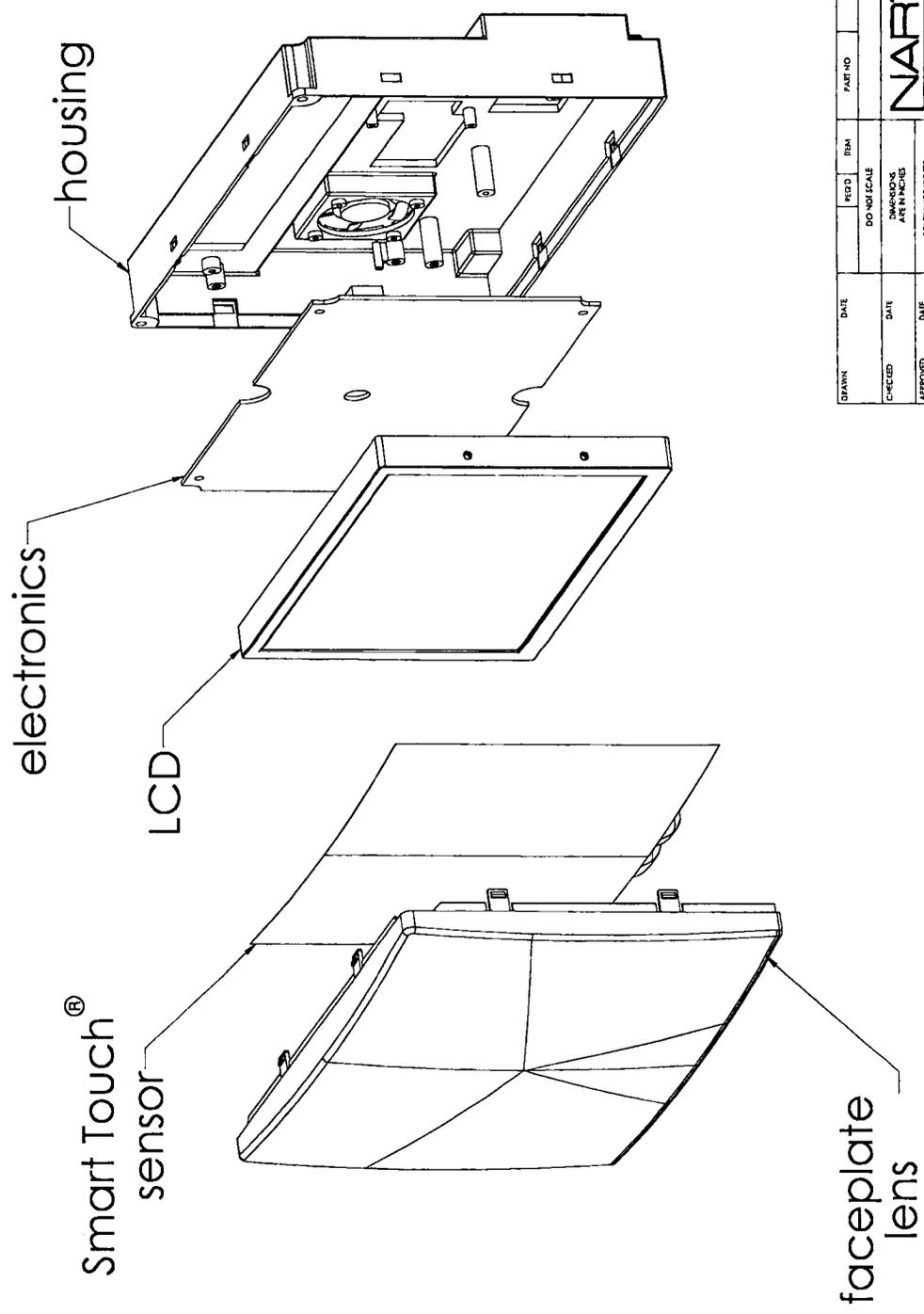
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RENGAD 800-681-6888

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REV	DATE	BY	DESCRIPTION
			ORIGINATED

# iQ Power™ HMI



DRAWN	DATE	REV'D	ITEM	PART NO	DESCRIPTION
CHECKED	DATE	DO NOT SCALE			LIST OF MATERIALS
APPROVED	DATE	TOLERANCES UNLESS OTHERWISE SPECIFIED			<b>NARTRON CORPORATION</b> NARTRON CORPORATION
MATERIAL		2 PLACE DECIMALS 80.01			<b>iQ Power™ HMI Assembly</b>
NOT ASSEMBLY		3 PLACE DECIMALS 80.008			
		ANGLES 8/12°			
		PROJ. REF. TO DET. 2A			
		SCALE: NTS			
		SHEET 1 OF 1			
					NO. 1330025

# CADILLAC News

Trusted. Local. Connected.

APRIL 10, 2009 | www.cadillacnews.com

Cadillac, Michigan

## Auto shows turn heads for Reed City company

By Matt Whetstone

**REED CITY** - Imagine a world without buttons. Or levers. Or knobs.

Nartron has. And now the Reed City-based manufacturer is beginning to see how big that vision could become.

Following the Detroit Auto Show, Nartron's

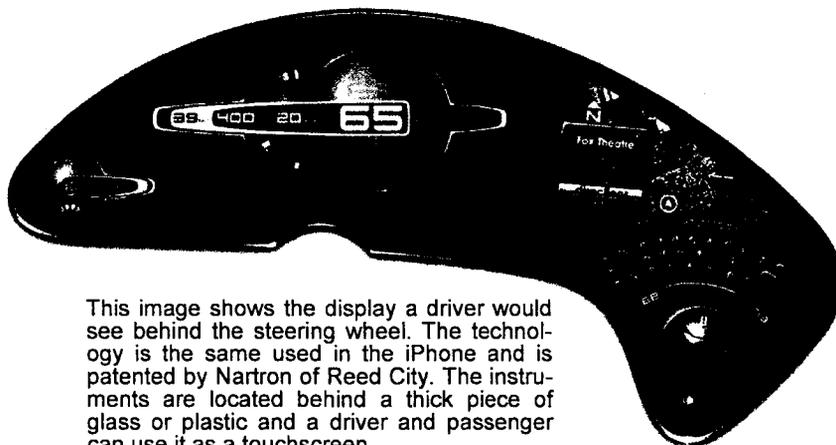
Smart Touch technology created a lot of buzz for the manufacturer among domestic auto-makers.

At the New York Auto Show this week, Nartron founder Norm Rautiola said international auto-makers are turning their attention Nartron's way, too.

Nartron has worked with Chrysler to install the Smart Touch technology in some of its auto show vehicles. The result is a large, button-free interface that is interactive for drivers and passengers.

Basically, it's an iPhone for your car, as Nartron owns the patents behind the technology that makes the iPhone work.

"This is really big stuff that's going to change the industry," Rautiola said. "Now, we have luxury at a cost savings. Nobody does that. With the solid-state,



This image shows the display a driver would see behind the steering wheel. The technology is the same used in the iPhone and is patented by Nartron of Reed City. The instruments are located behind a thick piece of glass or plastic and a driver and passenger can use it as a touchscreen.

touch-screen technology, everything can be made in any structure."

What a driver normally would see behind a steering wheel is a mish-mash of panels, buttons and gauges. The Smart Touch puts all that behind a thick, solid piece of plastic or glass without sacrificing user-friendliness. When the driver touches a display for the car's windows, the windows go up or down.

"People ask how to interact with something behind the glass," Rautiola said. "It senses you when you wipe your finger or use multiple fingers. All buttons, knobs and levers are eliminated. That's where the cost savings is. There's nothing to rattle or stick out and break up the feeling of the sculptured design."

With the solid-state, touch-screen technology, Rautiola said designers can create clean, sculptured lines without losing any function and at a cheaper price than before.

Interest in Nartron's technology has exploded in the last year. Rautiola said it was tough to drum-up interest in the product outside of Chrysler. Once the technology was revealed, however, more and more interested parties came calling.

"What that means is some interesting and exciting things in this dreary north," Rautiola said. "I'm not sure where this is going to go, but it's going to keep rolling."

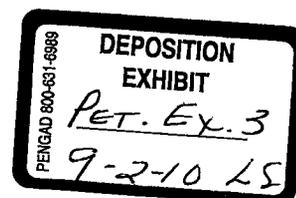
### Nartron Technology

The iQ Power™ solid state touch screen systems use powerful MPA (multi-point activation), proprietary Smart Touch® technology to empower the user to simply reach and come close to its surface (which illuminates the IP), and with a flick or gesture of a finger, quickly scroll through a wide variety menu options such as climate, music, GPS, etc.

Wide design freedom in instrument panel styling/function is instantly achieved. Elegantly sculptured contours with cool, sleek displays bring "touch Trackball control of IP functions screen envy" to the car cockpit for the first time.

iQ Power™ systems dramatically improve functionality while costing much less than traditional knobs and buttons. Easy to use screens reduce driver distraction and significantly improve safety. A breakthrough in reliability. As the inventor of Smart Touch®, our more than 20 years capacitive touch screen design experience makes us the only choice when you need the HMI power enhancement of multi-point activation.

Source: Nartron



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## Car Tech Trends for 2010 — and Beyond

What does the future hold for drivers and their vehicles? We take a look.

By *Erik Sofge* of *MSN Autos* December 12, 2009



Dashboards with analog dials and controls are fastly becoming a thing of the past.

Touchscreens like this one in Chrysler's 200C EV Concept are the wave of the future.

---

### 1. THE EVOLUTION OF USER INTERFACES

#### This Year: Touch-Screen Dashboards

Whether it's an epidemic of iPhone envy or a natural evolution of user interface, carmakers are beginning to replace analog dials and controls with touch-screen displays. They were used in nearly every electric or hybrid vehicle unveiled at this year's Frankfurt Motor Show, such as Volkswagen's E-Up! concept and Citroen's REVOLTe<sup>ω</sup>, whose touch-sensitive screens locate the nearest charging stations. Previous electric vehicles, such as Chrysler's 200C EV Concept and the Tesla Model S, show off huge swaths of touch-sensitive real estate (the 200C has no analog console controls), while other vehicles feature smaller touch-screen innovations. The decidedly nonelectric 2010 Range Rover comes with a 12-inch "dual view" display, which lets the driver check GPS directions while the passenger watches a DVD, both peering at the same display. The Range Rover also integrates more controls into its touch-screen interface than previous models, further proof that knobs, buttons and other "hard" controls are an endangered interface.

#### This Decade: Augmented Reality

The technology is still in its infancy, but augmented reality — the combination of a real image with a virtual one — is about to grow up fast. Wikitude Drive<sup>ω</sup>, a relatively modest in-car navigation application for the Android mobile phone platform, offers a glimpse of AR's potential. Instead of looking at a digital overhead view of your

# Chrysler 200C

Tech highlight: **UConnect HMI**

Developed with: **Nartron**

Project started: **January 2008**

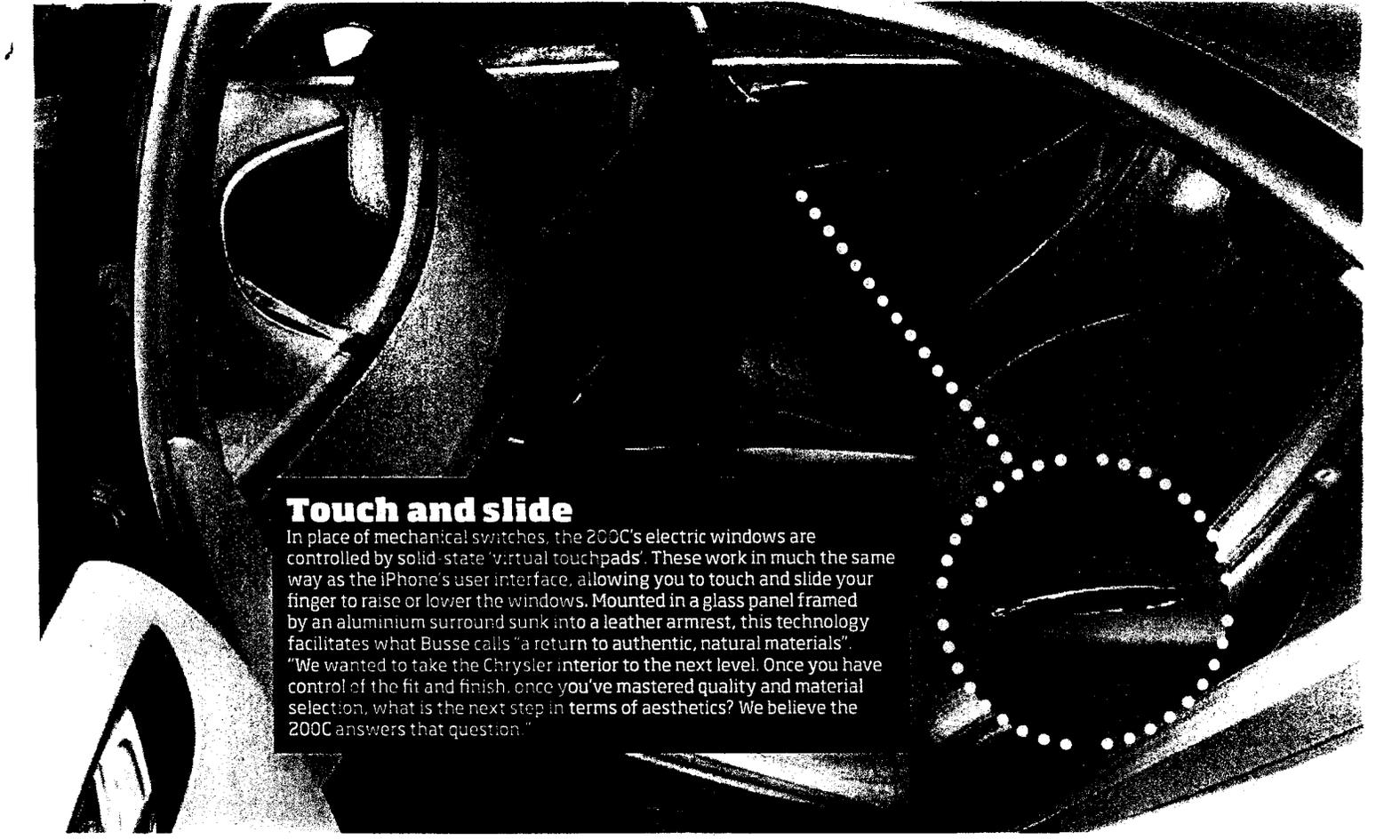
## Two can play

Like the driver's IP, this console-mounted virtual passenger interface features proximity sensors that can predict where the finger will make contact with the screen before it does so. Climate and radio/jukebox settings can be controlled from this access point, and a storage area below the panel can be used as a wireless charging point for cellphones. The 200C's - a modified iPhone, by the looks of it - acts as a kind of virtual keyfob, automatically activating the driver's preferred vehicle settings when they enter the car. It can also track the vehicle via GPS and remotely control the car's primary electrical systems - from anywhere in the world. While some glitches were evident when Busse demoed it for us at NAIAS, the technology clearly works.

## iPhone-style HMI

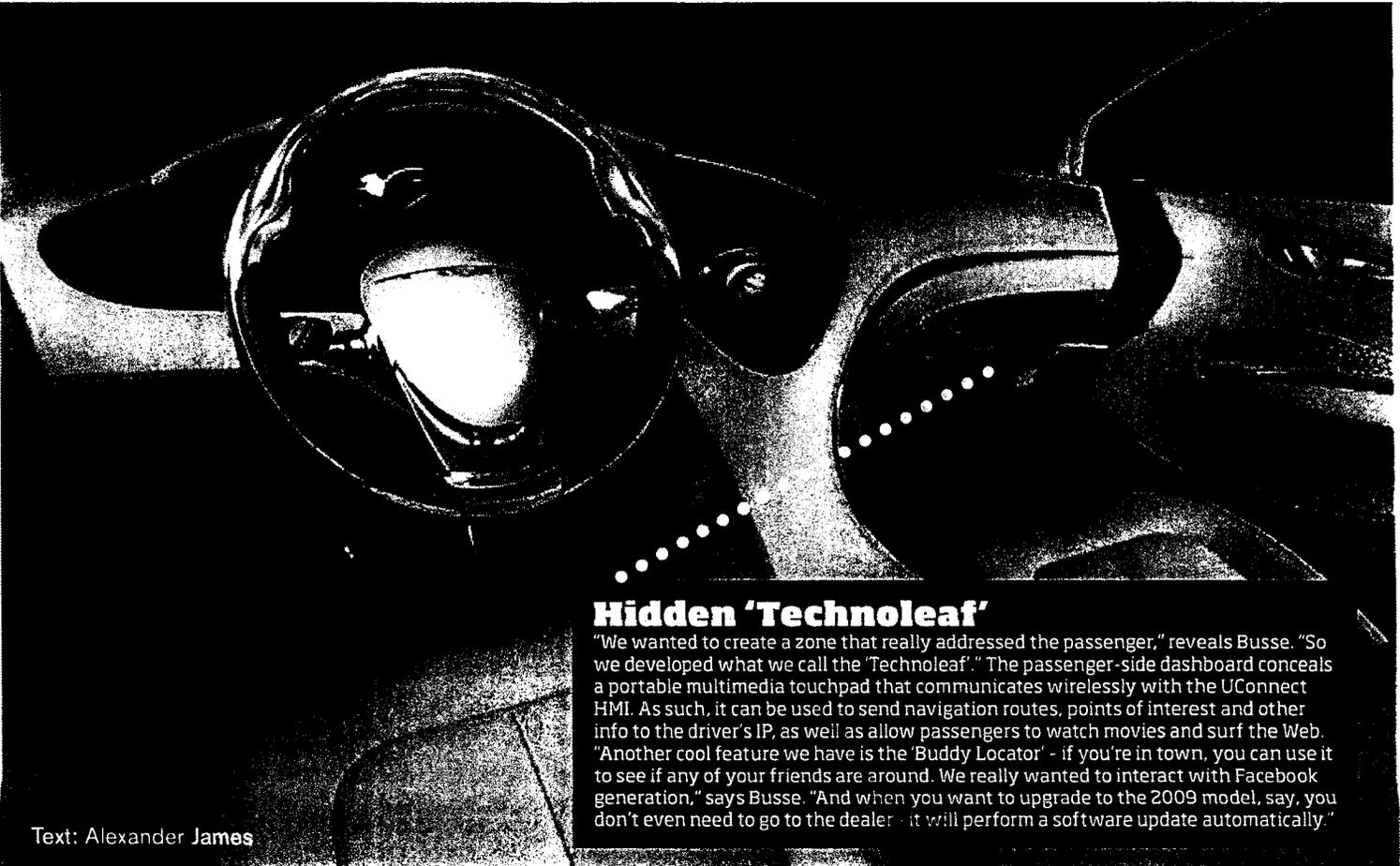
"What lies beyond? That's what this interior was designed to show," reveals Klaus Busse, Director of Advanced Interiors for Chrysler. The 200C's iPhone-inspired UConnect IP was developed by a team of eight engineers from Nartron (the company behind Apple's Multiple Point Activation iPhone interface) working alongside Chrysler Component manager Steve Holmes, VP Electrical Andreas Schell and Visualization Designer Brad Gieske. "We pushed them to the limit, and they pushed us," says Holmes. The HMI is encased in a 3/16th-inch-thick concave free-form glass panel, on to which images are back-projected, and has 100 times the power of an iPhone. The driver uses a virtual trackball to control a digital jukebox, tag music playing on the radio for download later on, adjust the climate settings and perform nav functions.





## Touch and slide

In place of mechanical switches, the 200C's electric windows are controlled by solid-state 'virtual touchpads'. These work in much the same way as the iPhone's user interface, allowing you to touch and slide your finger to raise or lower the windows. Mounted in a glass panel framed by an aluminium surround sunk into a leather armrest, this technology facilitates what Busse calls "a return to authentic, natural materials". "We wanted to take the Chrysler interior to the next level. Once you have control of the fit and finish, once you've mastered quality and material selection, what is the next step in terms of aesthetics? We believe the 200C answers that question."



## Hidden 'Technoleaf'

"We wanted to create a zone that really addressed the passenger," reveals Busse. "So we developed what we call the 'Technoleaf'." The passenger-side dashboard conceals a portable multimedia touchpad that communicates wirelessly with the UConnect HMI. As such, it can be used to send navigation routes, points of interest and other info to the driver's IP, as well as allow passengers to watch movies and surf the Web. "Another cool feature we have is the 'Buddy Locator' - if you're in town, you can use it to see if any of your friends are around. We really wanted to interact with Facebook generation," says Busse. "And when you want to upgrade to the 2009 model, say, you don't even need to go to the dealer - it will perform a software update automatically."

Text: Alexander James

# Virtual revolution

Liquid crystal displays are replacing analog gauges to give drivers more information in a reconfigurable format.

by Dan Carney



The Mercedes S-Class features a Bosch-supplied instrument panel that uses an LCD to simulate a virtual analog speedometer that matches the other instruments during daylight and that displays the infrared image when night vision is activated.

Looking back to the dawn of the automotive era, the methods of steering, shifting, braking, and controlling the throttle have evolved significantly. But over that time, the method of instrumenting cars has seen very little change. There has been some dabbling in linear analog and digital instruments, but the overwhelming standard has been the circular clock-like analog gauges inherited from steam engines.

Finally, with the arrival of virtual instrument panels based on reconfigurable LCD (liquid crystal display) panels, there is the potential for that familiar interface to be replaced. But those circular analog gauges, with their moving pointers, lasted as long as they did because they are a good way to convey important information at a glance, so one of the main things these new video panels may be used to display is a simulation of physical gauges.

The benefit lies in them being able to alternatively show other information as needed. That means the ability to display video images from backup cameras, for example. But it also means the ability to display information about new alternative drivetrain systems, which may not be best depicted in the familiar analog format.

## Technical challenges

"In the automotive space, there is a lot of interest in LCD for lots of different reasons," said Scott Birnbaum, Vice President of the LCD business for Samsung. "It is more flexible than an analog device that has a single purpose because it can be changed in real time to change its purpose," he said.

While Samsung is the world's largest LCD manufacturer, Birnbaum said, automotive LCDs present unique challenges for the company. That is because they must be made more rugged, so that drivers can depend on them to work for the life of the car, under a variety of conditions. Chief among those conditions is the wide range of temperatures seen inside automotive cabins.

A closed car baking in the sun can get extremely hot, potentially pushing an LCD beyond its "clearing temperature," when it turns black and may stay that way, Birnbaum said. The solution is to specify a liquid crystal in the display with a higher clearing temperature, he said. Heat can be mitigated through careful design including airflow paths and heat diffusers. At low temperatures, LCDs can respond sluggishly, so again, it is necessary to specify a liquid that is less sensitive to lower temperatures, Birnbaum explained.

The bright sunlight inside cars can also make it hard to see an LCD screen because of glare, so the image needs to be bright enough to stand out. LCD makers address this with a combination of bright backlighting and anti-reflective films on the glass to reduce glare.

## On the road

The first example of a car with virtual instruments on the U.S. market was on the 2007 Mercedes-Benz S-Class, which employed an 8-in LCD panel in the center of an instrument cluster.

ter, directly ahead of the driver, flanked on both sides by conventional physical gauges.

Under most circumstances, the LCD screen renders a convincing imitation of a circular analog speedometer matching the other gauges. But when the car's night-vision system is activated, the screen shows an infrared image of the road ahead, with speed indicated by a linear analog indicator across its lower edge.

Another methodology employed for the instrument panel in the Ford Fusion hybrid, which inverts the Mercedes approach, uses only a physical speedometer at the center of the instrument cluster and flanks it with a pair of 4.3-in LCDs that show all of the additional information.

These high-resolution color displays permit the Fusion to provide a huge amount of information and to exhibit it in innovative new ways, explained Sonya Nematollahi, Driver Information Engineering Supervisor at Ford.

Using a pair of smaller displays rather than one large one helps contain costs, because it uses LCDs from the extremely high-volume consumer electronics, handheld game, and cell phone sectors, explained Birbaum. This approach results in a reconfigurable display covering a large area of the dash, which costs only about twice as much as a conventional instrument panel, according to Nematollahi.

In contrast, using a single display large enough to replace all the physical gauges can be expected to quadruple the cost of the instrument panel, at least in the near term, reported James Farell, Senior Manager of Driver Information Platforms and Advanced Projects at Visteon Corp.

Visteon has just such a product that will debut in a European model imminently, Farell said. It has a 1280 x 480-pixel, 12.3-in single LCD panel replacing all the traditional instruments. This market may grow only gradually, but Farell predicts that by 2013, 5% of new cars will use a single large LCD panel for driver information, and another 20% will use at least one small LCD in the 4- to 5-in range to supplant some instrumentation.

One problem with traditional analog gauges is that tradition had become tyrannical, forcing unneeded gauges into

vehicles where they are inappropriate, asserted Rodger Eich, Studio Design Manager for Electronics Design Studio, North America for Johnson Controls, Inc. (JCI). Because of customer expectations, manufacturers have been installing tachometers in vehicles such as minivans equipped with automatic transmissions, he pointed out. "That tachometer is no longer relevant" in that application, Eich said.

### The medium is the message

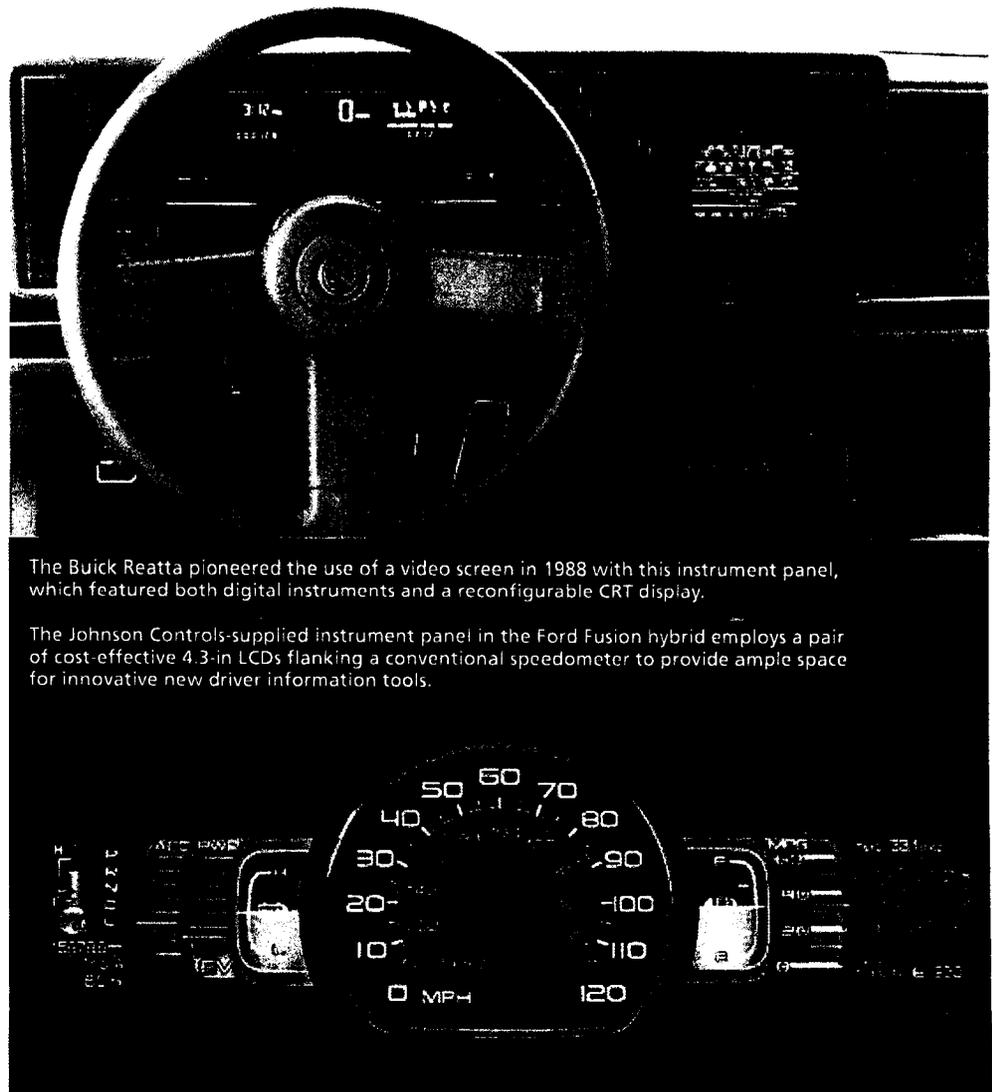
Manufacturers should instead use the space on the dashboard to provide information that is relevant to drivers, he said. It takes careful research to learn what information drivers can use instead. The price for failing to understand drivers' requirements is to have a new display consigned to the dustbin of history with the widely disliked digital

instruments of the 1980s, or failing to live up to the promised benefits, as was the case with the Apple Newton personal digital assistant, Eich said.

Manufacturers and suppliers are working to divine customers' needs, in some cases consulting with companies like IDEO, an industrial strategy and design company. Drivers' needs are changing along with the vehicles they are piloting.

Just as an automatic-transmission minivan has little need for a tachometer, so do vehicles with emerging powertrains have need for many of the old instruments. What good is an oil pressure gauge on a battery-electric car? And is a tachometer particularly useful on a hybrid-electric, which may not be using its internal-combustion engine?

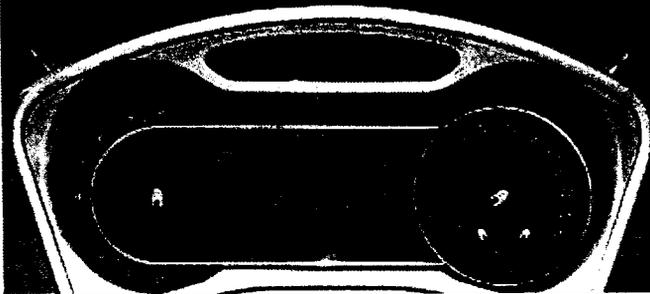
"[Ford engineers] were faced with the question of, 'We can get any data



The Buick Reatta pioneered the use of a video screen in 1988 with this instrument panel, which featured both digital instruments and a reconfigurable CRT display.

The Johnson Controls-supplied instrument panel in the Ford Fusion hybrid employs a pair of cost-effective 4.3-in LCDs flanking a conventional speedometer to provide ample space for innovative new driver information tools.

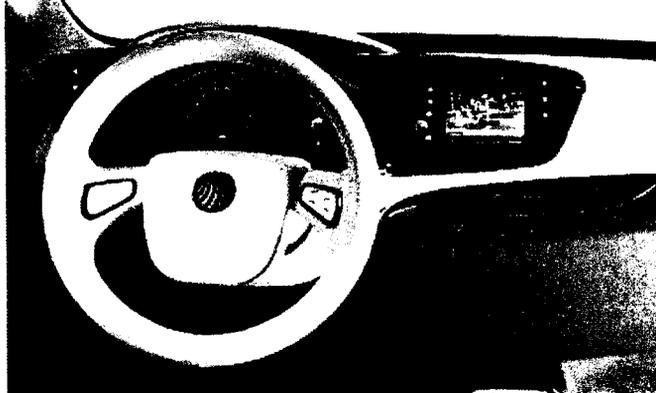
Visteon predicts that hybrid instrument panels like this one, which combines a 4.3-in central LCD screen with a pair of conventional analog gauges, will become very popular because of its combination of flexibility and low cost.



The Chrysler 200C concept car's instrument panel envisions a seamless display that combines information with control of entertainment and climate control devices using touch screens.



Visteon's RE3 concept instrument panel places a smaller LCD directly ahead of the driver and supplements it with a larger panel to the right, letting the driver move data front-and-center as needed.



about the car, but what is meaningful to the person who is driving that is going to get them to drive it better?" recalled Steve Bishop, SmartGauge Project Leader for IDEO.

The company surveyed drivers of models considered most similar to the Fusion hybrid to consider their experiences with the instruments they had to learn what they could most use. The most significant outcome of this research was the conclusion to have the gauges employ the philosophy of a coach providing guidance, explained Bishop.

A couple of the most important manifestations of this approach are the green-leaf scoring system that rewards efficient driving with a graphical depiction of green plants growing

more leaves. Another is the sliding scale overlaying the tachometer that indicates the throttle range in which the car can run in battery-electric mode without starting the gasoline engine.

IDEO discovered that Toyota Prius drivers were oozing slowly around town in the hope of not triggering the gasoline engine to start without ever knowing where that threshold lay. For the Fusion hybrid's SmartGauge, the team designed an overlay band that appears on the virtual representation of a linear tachometer whenever the conditions are right for the car to run in electric-only mode. This lets drivers accelerate at the threshold of gas engine start, if it is their goal to avoid that happening, and is an example of a new representation of data not relevant in traditional cars.

### Degree of difficulty

Interestingly, while deciding how to best display information is the most substantial strategic challenge for designers of reconfigurable LCD instrument clusters, one of the bigger technical challenges is accurately "faking plain old analog gauges," reported Farrell.

"The analog gauges are very important regardless of whether you have a traditional analog cluster or a reconfigurable cluster," he said. The anti-aliasing of thin, straight pointer needles is critical because otherwise they suffer the kind of "jaggies" seen in poorly rendered typefaces. It is also tricky to simulate a smooth sweeping movement of that needle. "The eye can quickly tell if you have skipped a step in the pointer movement," Farrell said.

Because sports cars, along with luxury models, are expected to be some of the primary applications for reconfigurable LCD instrument panels, obvious options for such cars would be to have a large tachometer in the center, with other parts of the dash showing performance parameters or lap times, Farrell suggested. "The important thing is being able to display what the driver needs depending on what is going on," he said.

In addition to designing the display of information on the dashboard, developers must also decide how drivers will be able to manipulate that information. JCI forecasts the use of capacitive iPhone-like touch screens that recognize gestures. Using a two-screen design, with a smaller 4.3-in display directly ahead of the driver and a larger 7-in display to the driver's right, JCI's touch-screen system works a bit like a dual-monitor computer setup, with the driver able to move information from one screen to the other as needed, explained Eich.

"It is a compelling way to manage content and information within an extended cluster," he said. The concept was developed after significant research into drivers' experiences with other devices to ensure its use was understandable. "We want to make sure our technology aligns with what consumers expect are."

The impressive virtual dashboard in Chrysler's 200C concept car may be the most complete depiction of the eventual end result of the trend, with a large, irregularly shaped display wrapped to fit the contours of the dashboard and responding to touch inputs.

"We're very excited about this," enthused Brad Giese, a visualization designer for Chrysler. "We feel very strongly this is where the future is headed," he said. But as the display becomes larger and more capable, so does the need to refine its interaction with drivers. "A lot of usability studies need to be done," concluded Giese. **aei**

### Too much hybrid hype

In "Future of plug-in hybrids forecast by panel" (February 2009, page 34), may I point out that all hybrid-electric vehicles (including PHEVs) captured only 3% market share at the height of gas prices last summer. It dropped back to about 2% since, and may stay. I (we) support plug-in hybrid-electric vehicles, but they need to do better than 40-mi range to be a major player. HEVs are going to be only niche players.

Yes, there is too much hype about hybrids that we lose sight of the venerable internal-combustion engine (ICE).

Hybrids use a small engine to operate near the "sweet spot" and an external storage to boost to higher loads, besides recovering energy waste from brakes, etc. The round trip to storage loses about half of the energy. The main efficiency comes from engine downsizing; waste recovery has small percentage except from idling. Cylinder deactivation is just as efficient as the hybrid, but without the cost premium.

We believe a revolutionary ICE is the immediate future, such as the D-cycle. Four-cycle engines deliver one-fifth or less of the fuel energy input to the engine to drive cars. There is still ample beef in this century-old ICE technology to chew on.

We cannot dream on the long-term ideal solutions like fuel cells, batteries, hybrids, etc., while we continue to burn hundreds of millions of gallons of fuel every day, times 365. Detroit and the country need immediate solutions.

MJ Yan, PhD  
CEO

GENWY Power Technology Ltd.

### Wiring worries

In the "Lighten up!" feature (March 2009, page 16), we learn that the next Toyota Yaris will have an aluminum wiring harness. Not for me, thanks.

In the late '60s and early '70s, nearly half a million homes in Canada (and no doubt quite a few in the U.S.) were fitted with aluminum wiring because of a spike in the price of copper, and oxidation at connections caused flickering lights, power outages, and fires. Aluminum oxide

is nonconductive, unlike copper oxide, and overheats.

Once word got around, houses could not be resold until the wiring was ripped out and replaced, accompanied by major re-plastering. Less drastic alternative workarounds may have satisfied insurance companies but did not return the houses to their normal market values.

Domestic house wiring is well protected. In an automobile, it is exposed to vibration, humidity, and road salt. My present car has trouble-free electrics, and I would not want to replace it with one having a built-in risk factor.

Garry Marnoch  
Former General Motors engineer  
Pontypool, Ontario, Canada

### In touch

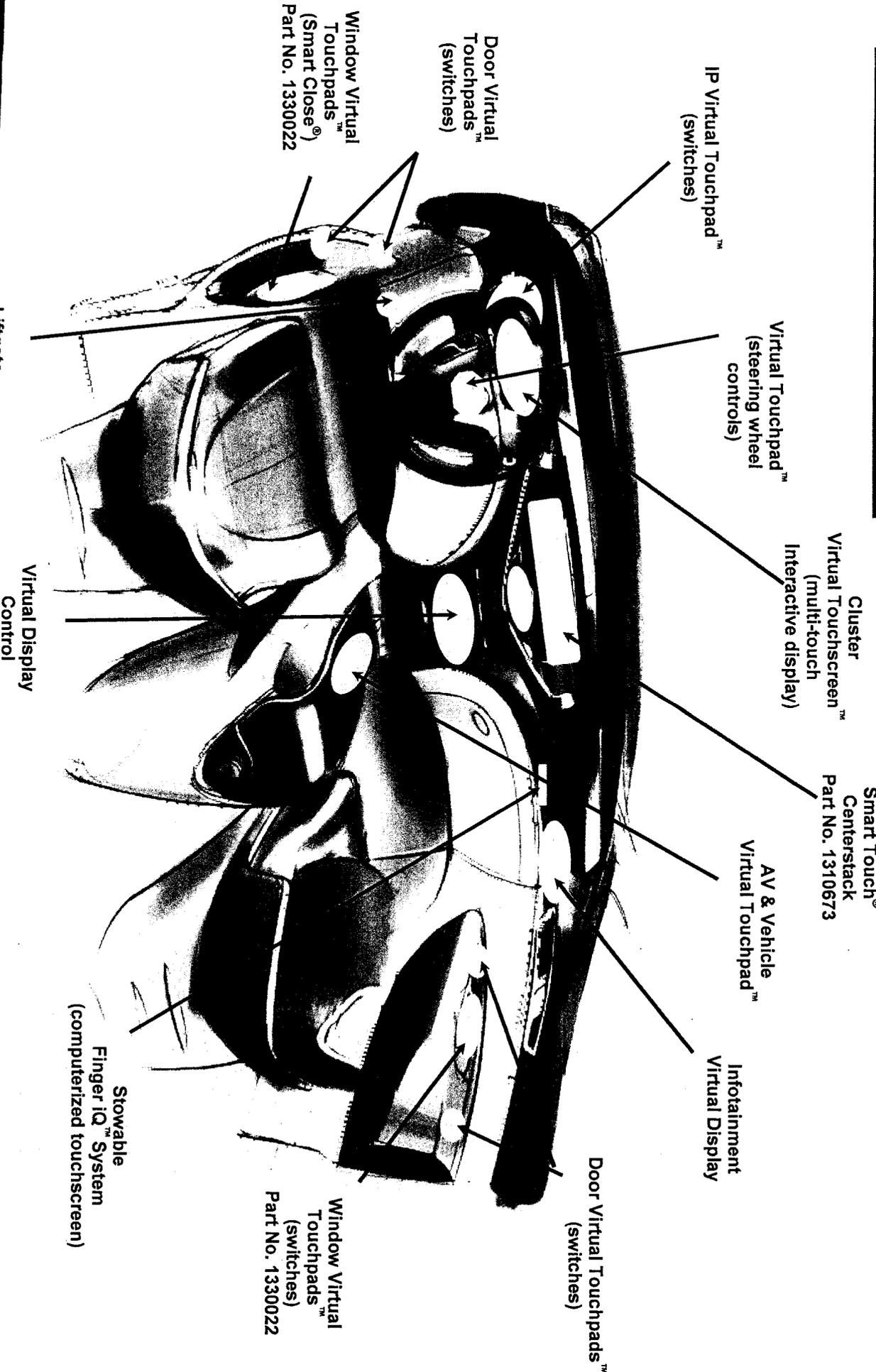
The "Touching the future" feature (March 2009, page 28) is timely. The exciting Chrysler 200C interior reveals exacting clarity of design (which we humans call "beauty") without sacrificing function, as empowered by the Nartron Smart Touch capacitive pioneering technology.

Norman Rautiola  
CEO  
Nartron Corp.

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Please include your name, title, organization, e-mail address or telephone number, and postal address. Submitted letters are considered publishable unless otherwise stated by the author. We reserve the right to edit letters.

# iq Power™ Systems



IP Virtual Touchpad™  
(switches)

Virtual Touchpad™  
(steering wheel controls)

Cluster  
Virtual Touchscreen™  
(multi-touch interactive display)

Smart Touch®  
Centerstack  
Part No. 1310673

AV & Vehicle  
Virtual Touchpad™

Infotainment  
Virtual Display

Door Virtual Touchpads™  
(switches)

Door Virtual™  
Touchpads  
(switches)

Window Virtual™  
Touchpads  
(Smart Close®)  
Part No. 1330022

Window Virtual™  
Touchpads  
(switches)  
Part No. 1330022

Stowable  
Finger iq™ System  
(computerized touchscreen)

Virtual Display  
Control

Liftgate  
Virtual Touchpad™  
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iq Power™ Systems provides up to \$450.00/vehicle costs savings!  
It also eliminates the electrical system overloading.



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(231) 832-5525 · www.nartron.com

Centerstack Assembly  
iQ Power™ Module  
Part No. 1310640

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- Anti-glare, anti-reflective coating.

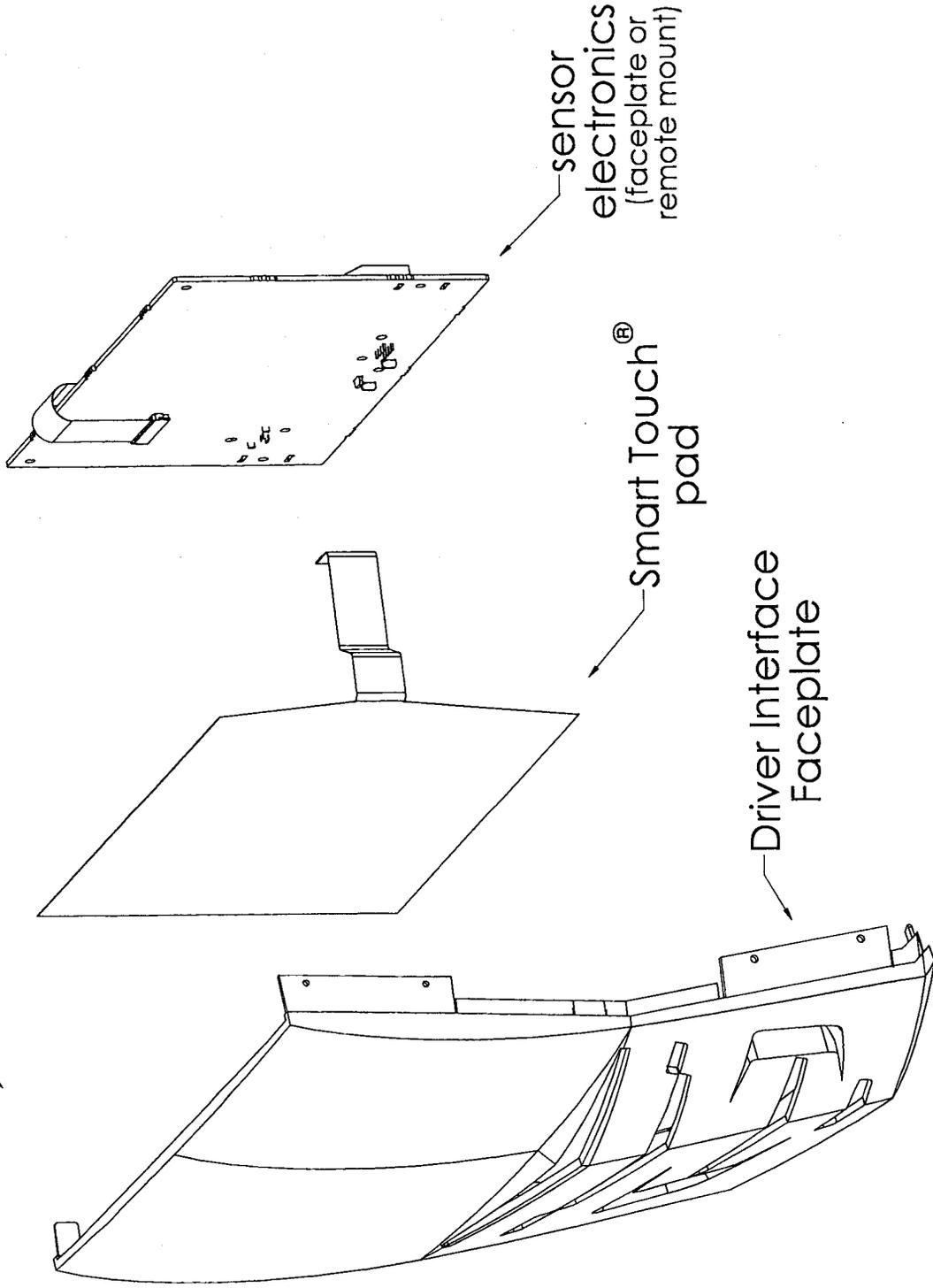
Integrated SENSE - COMPUTE - CONTROL® Systems

\*covered under one or more Nartron patents: 4,731,548; 4,758,735; 4,831,279; 5,087,825; 5,796,183; 5,952,801; 7,503,498  
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PET. Ex. 8  
9-2-10 LG  
PENGAD 800-681-6988

# Centerstack Assembly

iQ Power™ Module



# Smart Touch<sup>®</sup> sensing places the power of the microprocessor at your fingertips

Erin Kirby  
Nartron Corporation

Rachel Guerrero  
Sanyo Automotive U.S.A., Inc.

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## ABSTRACT

Smart Touch<sup>®</sup> sensing is a breakthrough in human interface technology allowing direct access to computer power, such as with the highly successful iPhone™ and other handheld devices. By combining the reliability and flexibility of completely solid state sensing along with anthrotronic considerations, capacitive sensing interface technology creates new automotive design opportunities.

Consumers are increasingly turning to touch screen devices for their ease of use. Touch screens enable designers to dramatically improve the automotive interior for (1) user satisfaction (2) OEM cost benefits (3) important safety/ergonomic benefits and (4) styling design freedom to harmonize with interior themes. Panels will not only act on touch, but will have functions that respond to hand gestures and movements. For example, a center stack console can be enabled to illuminate when the user makes a movement near it, with the added benefit of conserving power. Interfacing to a vehicle by capacitive sensing creates entirely new opportunities in the evolution of automotive interior design. The styling design possibilities are nearly endless providing freedoms that are unachievable with conventional switches.

This paper describes the design and operation of various systems that employ capacitive sensing technology. Also discussed are vehicle integration, ergonomic enhancements, and safety benefits associated with this technology.

## APPROACH

Capacitive sensors have several noteworthy features not found in conventional switches such as those in the automotive center stack console shown in Figure 1. The most apparent difference in capacitive sensors is that they do not require force for activation. By utilizing materials like indium oxides, conductive polymers, or other evolving nanomaterials, capacitive sensors can be fabricated as optically transparent films. This results in

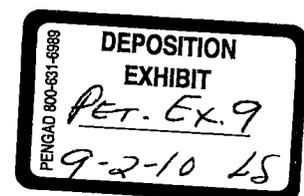
capacitive sensors that are clear and thin enough to be placed in front of visual displays without noticeably degrading the optical clarity of the viewing area.



Fig. 1

Another key feature of capacitive sensors is that they can sense through relatively thick materials. Designers now have the option of integrating human interfaces into once unconventional locations such as the inside of trim panels, faceplates, moldings, and other such protective or ergonomic surfaces without disturbing the aesthetics of the finished product. Furthermore, capacitive sensors can form to complex contours and shapes providing virtually unlimited functional sensing geometries.

Applying capacitive sensors to a substrate in multiple or matrix configurations such as that shown in Figure 2 creates a versatile touch surface for human interface. Sensors activated by touch translate into coordinates that represent the points of human contact on the substrate surface. These contact points are processed by the control system into recognizable user input commands.



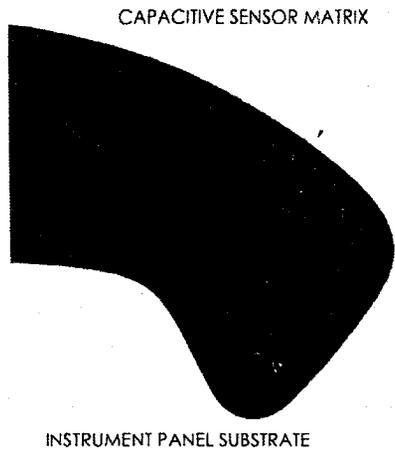


Fig. 2

Making the substrate and capacitive sensors largely translucent permits direct backlighting of the sensing areas. Backlighting can assist to locate the touch sensors and provide visual feedback of sensor activation.

In a more innovative approach, rear-projection technology can project light directly through the sensors to render images onto the surface of a substrate. When a sensor is activated, the image projected toward its position then corresponds to the users input request. If desired, sensor activation feedback can then be communicated through alteration of the projected image. Rear-projection offers the flexibility of displaying sharp images despite the complexity of a desired surface shape and contour. There are limitations in a rear-projection approach that must be taken into consideration by automotive interior designers:

1. Can enough light intensity be generated?
2. Heat build-up from the light source must be dissipated - This concern may be overcome by means such as air ventilation or the use of thermal electric devices.

As we move full speed into the information age automakers are constantly challenged by the consumer to provide vehicle features that will enhance their personal commuting experience and keep them connected to the world outside. As new features make their way into vehicles, the requirement is to provide a more logical and intuitive approach to managing the complexity of each human interface component.

## APPLICATION

Visualize a vehicle interface system where display gages and indicators can be moved anywhere about the Instrument Panel (IP) or Center Stack Console (CSC). Likewise, input sensors can also be positioned most

anywhere about the IP or CSC. The IP and CSC can then effectively be customized and set for the personal preferences of more than one driver. Expand the vision further by integrating the IP and CSC into a single contoured translucent substrate that flows around the steering column and down the center console area. Projectors illuminate the substrate from behind to create visual gages and indicators across the substrate surface. Likewise, the substrate is fabricated with multiple independent capacitive sensors as well as large areas of capacitive matrix sensors. Figure 3 shows a vehicle interior for application of capacitive touch sensors.

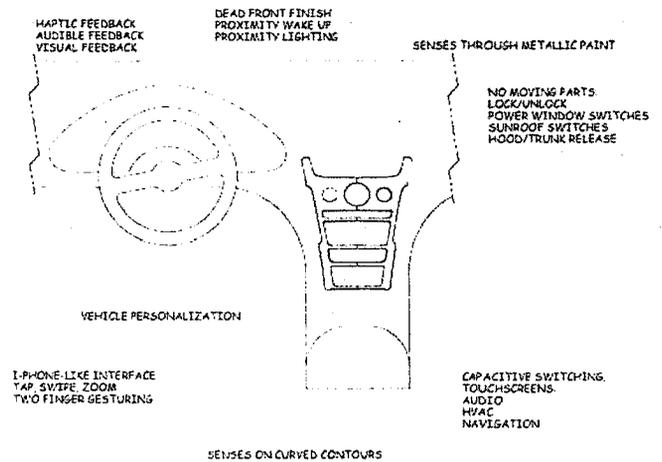


Fig. 3

Figure 4 shows the application of capacitive sensors in a center stack console integrated with conventional switches. The backlit blue text locations are capacitive touch sensors.

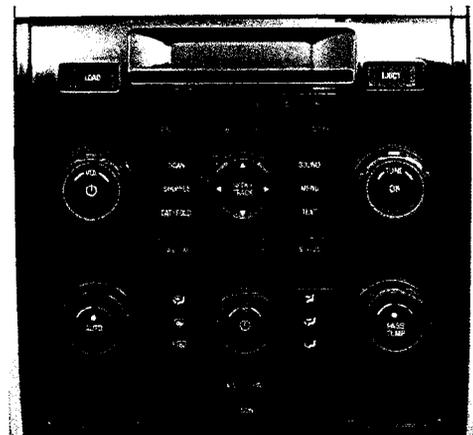


Fig. 4

As the vehicle occupant reaches towards the CSC, capacitive proximity multipoint activation sensors (PMAS) behind the substrate detect an approaching object and the display illuminates the CSC with primary command icons. These icons create a menu structure that provide access to vehicle features like audio

entertainment, climate control, navigation, video entertainment, telecom services, vehicle status, etc.

By touching one of the primary icons a new display appears having secondary icons related to the primary selection. The secondary icons depict items like graphics displays, status indicators, and command sensors. Touching any one of these icons would invoke a response from the system allowing the occupant to perform functions related to the icon. These functions could be as simple as turning the radio on or displaying vehicle status information. Or they could initiate more complex instructions like "retrieve and play voice messages".

Regardless of the function, a vehicle display system of this type would require a standard set of display images and control icons capable of accessing and managing the vehicle functions. The user would be free to locate the graphical images within the projected regions of the substrate to create customized instrumentation layouts.

Images might further be tailored using commands that could resize, rotate, or adjust image properties for preferred viewing. For example images representing oil pressure could be changed between analog readout, digital readout, or simple warning light. Frequently accessed indicators like speedometer, odometer, and fuel status could be fixed in position and remain illuminated while less important display features like audio tone controls could remain hidden and accessible from within entertainment submenus. Navigation and Infotainment screens could be minimized and positioned out of main view then maximized and relocated to a main viewing position when invoked.

In this vehicle system, dedicated function switches no longer exist. Instead capacitive sensors are actively reassigned functions based on the images that project through them at time of switch activation. In addition to switch reassignment, the control systems capacity to process capacitive sensor coordinates make possible the recognition commands through human gesture. By monitoring switch activation sequences, gesturing is used as a form of input command to further enhance the human touch interface.

PMAS enables directional finger gestures like swiping upward or downward across an icon or image to be decoded as requests to increase or decrease setting values in functions such as audio volume control. Finger gestures like pinch open and pinch close could be decoded as requests to enlarge and shrink images. While on a navigation screen, they could represent zoom in and zoom out commands to adjust the degree of screen detail. A "squiggle" gesture might be interpreted as a request to cancel an operation, for example "turn off radio" or "turn off climate control" when performed over the primary command icon.

## CONCLUSION

Configurable displays and capacitive sensors such as that presented here can reduce the visual clutter destined to plague many future vehicle cockpits. This degree of function integration takes human-computer interface to a new level and creates a more ergonomic and intuitive interface for the vehicle driver and passengers.

The absence of switch plates and display bezels produce seamless interior contours permitting greater artistic expression in vehicle interior design, as shown in Figure 5.

Automotive interior is an excellent application for capacitive sensors. Most interior surfaces of an automobile are made from non-conductive plastic which is ideal for capacitive sensors. With an ever increasing amount of creature comforts and entertainment features in demand and being integrated into vehicles, so increases the complexity of the interfaces needed to access and operate these features. Vehicle interior designers must be creative and open to new approaches on how occupants will access and interface to this growing list of vehicle features. Capacitive sensing offers a multitude of solutions to meet these needs.

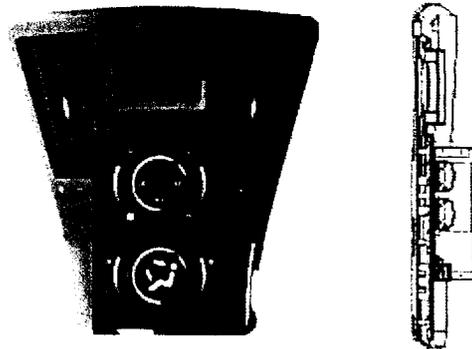


Fig. 5

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5,369,375 5,730,165 5,796,183 6,377,009
- <sup>2</sup> *Providing an Edge in Capacitive Sensor Applications*  
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Devices, Inc.
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Strategy, News (EDN)

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## Smart Touch® Sensing Places the Power of the Microprocessor at Your Fingertips

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DOI: 10.4271/2009-01-0521

## Author(s):

Erin Kirby - Nartron Corp.  
Rachel Guerrero - Sanyo Automotive U.S.A, Inc

## Abstract

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Smart Touch® sensing is a breakthrough in human interface technology allowing direct access to computer power, such as with the highly successful iPhone™ and other handheld devices. By combining the reliability and flexibility of completely solid state sensing along with anthrotronic considerations, capacitive sensing interface technology creates new automotive design opportunities.

File Size: 676K

## References

1. Capacitive sensing – Nartron Patents 4,731,548 4,758,735 4,831,279 5,087,825 5,369,375 5,730,165 5,796,183 6,377,009
2. Providing an Edge in Capacitive Sensor Applications Power Conor and O'Niell, Garry 1995–2008, Analog Devices, Inc.
3. Capacitive Touch Sensors Fans Gain Marsh, David June 2006, Electronics Design, Strategy, News (EDN)

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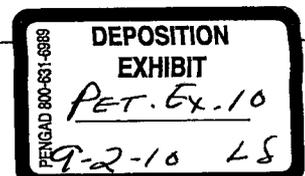
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1968 – 1979

*Sensors, controls, displays, annunciators*

- First vehicle Illuminated Entry System (IES)
- First integrated Backlight Timer System (BLT)
- First solid state integrated liquid level alarm system (Level Guard™)
- First solid state integrated voltage sensor & alarm (Voltron®)
- First multiple sensor input integrated alarm system (Bark®)
- First audio/visual integrated electronic alarm (Buzz-Lite®)
- First solid state automotive relay
- First "1x1x1" automotive production relay (Minipower®)
- First self canceling truck turn signal system
- First integrated solid state sensors/controls (Smart Power®)
- First solid state flasher (Lifetime)
- First solid state LED vehicle lamp assembly (Permalite)
- First production smart card door lock system (Saflok)
- First drunk-driver interlock system
- First integrated glove box switch/light assembly

1980 – 1985

*Microprocessor based systems*

- First electric power steering system
- First production drive-by-wire system
- First electronic cruise control
- First in-dash computer (GM Graphic Control Center)
- First operator interactive (HMI) computer system
- First "talking car", production
- First electronic chime
- First voice operated vehicle control system ("Close 2000")
- First hands-free vehicle telephone system
- First microprocessor Keyless Entry System
- First solid state glow plug controller
- First automotive industry surface-mount production assemblies
- First low cost solid state fluid volume sensor system (EOL)

1986 – 2003

*Further integration of SENSE → COMPUTE → CONTROL®*

- First road sensing suspension sensor (RSSS)
- First multi-turn solid state rotary position sensor
- First production ambient light integrated sensor/alarm
- First solid state pedal pressure sensor (Smart Pedal®)
- First solid state vehicular switches (DC and AC) (Smart Touch®)
- First solid state interactive displays/touchscreens
- First full electronic controlled gas range (Smart Flame™)
- First low cost pressure sensor (molecule counter)
- First automotive seat massage system
- First solid state PWM headlamp dimmer system
- First high performance centrifugal HVAC compressor
- First solid state turbidity fluid sensor ("photon counter")
- First "Smart" dishwasher: auto sensing soiled dished
- First air driven automotive turbine generator
- First high performance integrated oven & range
- First diesel Quick-Start electrical control system
- First touch screen user volume production
- First scrollable solid state input system
- First non-contact anti-trap window closure systems (Smart Close™)
- First convertible roof closure *non-contact* anti-entrapment systems

2003 – present

*Further systems integration of SENSE → COMPUTE → CONTROL®*

- First low cost integrated seat/door/IP cockpit control system
- First Smart VOV™ high performance refrigerant controller
- First adaptive, high efficiency, ice cuber system
- First fully integrated electronic fuel delivery system
- First operator interactive gen-set control system
- First high accuracy, solid-state fuel level sensor
- First FMVSS-103 hot fluid windshield cleaning system (ClearFast®)
- First SAE J-1939 multiplex genset system
- First solid state interactive IP; Chrysler 200C (IQ Power™)
- First volume production virtual IP centerstack

partial list

Rev. 6.9.08

\*\*Nartron patented products

PENGAD 800-631-6889

DEPOSITION  
EXHIBIT  
PET. EX. 11  
9-2-18 LS

Int. Cl.: 9

Prior U.S. Cl.: 21

**United States Patent and Trademark Office**

**Reg. No. 1,681,891**

Registered Apr. 7, 1992

**TRADEMARK  
PRINCIPAL REGISTER**

**SMART TOUCH**

NARTRON CORPORATION (MICHIGAN COR-  
PORATION)  
5000 N. U.S. 131  
REED CITY, MI 49677

FIRST USE 12-17-1986; IN COMMERCE  
1-7-1988.

SER. NO. 74-168,921, FILED 5-22-1991.

FOR: ELECTRONIC PROXIMITY SENSORS  
AND SWITCHING DEVICES, IN CLASS 9 (U.S.  
CL. 21).

CORA ANN MOORHEAD, EXAMINING AT-  
TORNEY

PENGAD 800-831-6989  
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9-2-10 LS

# CAPABILITIES

## NARTRON COMMITMENT TO YOUR PRODUCTS

We all face intense competition.

How we confront this competitive challenge determines our future economic survival.

Over the past 20 years, Nartron has developed a deep commitment and performance capability to help you meet the challenge.

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- Optimum Performance
- Timely Delivery
- Competitive Prices

### OUR CAPABILITIES INCLUDE:

- Product Planning
- Specification Support
- Specification Development
- Conceptual Design
- Detailed Design:
  - Electro-Mechanical
  - Mechanical
  - Advanced Electronic Design
- Prototype Development
- Complete Manufacturing and Test Facilities
- Circuit Assembly Design and Fabrication:
  - Through Hole
  - Surface Mount
  - Hybrid

### PROVEN OUTSTANDING QUALITY

- AC/Delco Electronics Top Quality Award Winner

As we streak toward the 21st century, the challenge is clear. Success will be a team effort. We at Nartron are committed to our role as a member of your team. We welcome your use of our capabilities as we support your success.

*From specification to delivery of product, Nartron does it all!*

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- Test System Design and Fabrication
- Computer Aided Project Management
- Statistical Process Control In Manufacturing
- Superior Manufacturing Technology
- "State of the Art" people with a forward lean

### OUR PRODUCT EXPERIENCE COVERS:

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  - SMART-POWER® Logic Modules
  - Connector and Wire Assemblies
  - Lamp Assemblies
  - Annunciators
- Advanced Electronic Products:
  - Infrared Sensors and Switches
  - Visual Displays:
    - VF, EL, LCD, CRT, Projection
  - Acoustic Displays:
    - Chimes, Buzzers, Tone Generators
    - Voice Synthesizers
    - Voice Recognition
  - Interactive Displays:
    - Self Diagnostic Systems
    - Acoustic and Visuals
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    - PWM Linear and Rotary Actuators
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    - Remote Controls

**NARTRON**  
CORPORATION

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9-2-10 L8

# PRODUCT LISTING BY APPLICATION

Wartron has designed, developed and produced these products for our customers:

## SENSORS

Position, non-contact  
Fluid Level (oil, gas)  
Fluid Flow  
Displacement  
Differential Pressure  
Pressure and Force  
Temperature  
Voltage/Current  
Air Flow  
Speed  
Mechanical Wear  
Ambient Light  
Gear Tooth  
Wheel Speed  
Water (in fuel)  
Rain  
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Power Seat Position  
Voltron™  
Fuel  
SMART PEDAL™  
Ice

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Chimes  
Tone Generators  
Electronic Horns  
Ultrasonic Alert  
Voice Synthesizer Modules  
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Buzz-Lite®

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Fluid Control Valves

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Time Delay Relays  
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Push Button Switches  
Solid State Switches  
Knife Switches  
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Power Window Switches  
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Battery Cables  
Molded Connectors  
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Precision Terminals  
EMI Protection  
Environment-Proof Connectors

## VISUAL

Tail Lamps  
Panel Lights  
Indicator Lights  
Indicator Lenses  
Glove Box Switch-Lamp  
Visual Alarms/Audible  
Flashers

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Specification Development  
Conceptual Design  
Detailed Design  
Design and Development  
Mechanical  
Electro-mechanical  
Electronic  
Micro-processor  
Analog Circuit  
Circuit Modules  
Design  
Development  
Assembly  
Test and Burn-in  
Custom Semiconductor Design  
Plastic Decorating  
Tooling and Mold Design  
Insert Molding  
Potting, Coating, Encapsulation  
Circuit Emulation  
Coil Winding  
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## SMART-TOUCH™ Solid State Sensor System

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### APPLICATIONS

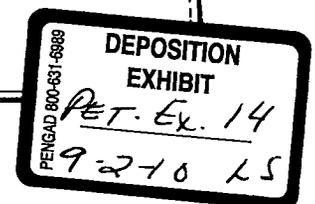
- The SMART-TOUCH™ System is a breakthrough in switching technology. By combining the reliability and flexibility of solid state electronics with a uniquely designed sensing system, Nartron has created a "new world" of design opportunities.
- Programed multi-level and/or multi-function outputs allow control of: motor speed, lamp intensity, load control and multiple ON/OFF functions.

### FEATURES

- SMART-TOUCH™ is a totally solid state design featuring either touch or proximity actuation. No moving parts.
- Senses through glass, plastic, laminates, fabric, vinyl, etc.
- High-density "keyboarding" allows compact control configurations.
- Totally sealed sensing system allows operation at virtually any (non-condensing) humidity level.
- May incorporate multiple-input sensing and automatic shutdown or lockout function.
- SMART-TOUCH™ can operate on AC or DC. Controls resistive as well as inductive loads. The versatile system can control fluorescent fixtures and electric motors.
- SMART-TOUCH™ uniquely lends itself to multiplex systems since its solid-state switching operates at logic levels and can interface directly with electronic controllers.
- Switch function is independent of surface graphics and allows a new level of design freedom since the overlay surface is not part of the switch. Deadfront backlit applications are optional.
- Highly skilled professionals at Nartron are ready to meet any specific applications. Immersed in a creative atmosphere coupled with advanced CAE and CAD, laboratories and simulation systems, we are prepared to design a SMART TOUCH™ System to meet your requirements.

Pats. 4,731,548  
4,758,735  
4,831,279

Other patents pending.



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## Cypress's PSoC(R) CapSense Enables Touch Sensing Inside HP Compaq Notebook PCs

SAN JOSE, Calif.—(BUSINESS WIRE)—May 9, 2007— Cypress Semiconductor Corp. (NYSE: CY) today announced that its PSoC(R) CapSense enables the touch sensing interface inside multiple HP Compaq Notebook PC models. The Cypress CapSense solution not only provides the interface for a smooth, glitch-free user experience, but it also controls LED indicator lights on the notebooks, saving board space and reducing costs.

"We are pleased to provide the CapSense solution to HP, a world leader in notebook computers," said Carl Brasek, business unit director for Cypress's CapSense products. "This usage model highlights one of the CapSense customer benefits -- the ability to perform additional functions on top of capacitive sensing."

"Given HP's focus on delivering easy-to-use and reliable notebook PCs to our business customers, HP is pleased to integrate the CapSense solution, which provides an excellent user experience and is less prone to every day wear and tear than exposed buttons," said Carol Hess-Nickels, director of worldwide business notebook marketing in the Personal Systems Group at HP. "In addition, the CapSense solution enhances the sleek design and superb functionality we're providing to customers."

### About CapSense

A single CapSense device can replace dozens of mechanical switches and controls with a simple, touch-sensitive interface. CapSense-based "button" and "slider" controls are more reliable than their mechanical counterparts because they are not prone to the environmental wear-and-tear that affects exposed buttons and switches. Cypress has garnered well over 100 CapSense design wins worldwide in applications that include mobile handsets, portable media players, white goods, computers, printers and automotive, among others.

Capacitive sensing is fast becoming the solution of choice for front-panel display and media control applications. Increased durability, decreased bill of materials (BOM) and a clean, minimalist appearance make this elegant interface attractive to a wide range of designs. With Cypress's CapSense interface, a finger on the interface forms an electrical connection with embedded sensors, which work with the PSoC device to translate data about the finger's presence into various system control functions. The sensor itself is only a copper pad on the PCB, not an actual component. All of the circuitry for controlling the sensor is inside the PSoC device.

Cypress's CapSense solution offers system designers numerous advantages over capacitive sensing products built around modules and sub-assemblies, including increased flexibility, reduced board space and lower cost. Because of the unique PSoC architecture, designers can easily integrate multiple functions (e.g., LED drivers and LCD displays), in addition to capacitive sensing. The PSoC CapSense solution also delivers benefits such as easy communications using either I2C, SPI or USB interfaces, the ability to implement both trackpad (x-y matrix) and linear slider applications with the same device, and the ability to make quick design changes using the flash-based PSoC architecture. In addition, users can complete CapSense designs quickly and easily using pre-configured and verified "user modules" within Cypress's PSoC Designer(TM) 4.4 Integrated Design Environment (IDE). Learn more about CapSense online at [www.cypress.com/capsense](http://www.cypress.com/capsense).

### About the PSoC Family

PSoC devices are configurable mixed signal arrays that integrate a fast 8-bit microcontroller with many peripheral functions typically found in an embedded design. PSoC devices provide the advantages of an ASIC without the ASIC NRE or turn-around time. A single PSoC device can integrate as many as 100 peripheral functions with a microcontroller, saving customers design time, board

space and power consumption. Customers can save from 5 cents to as much as \$10 in system costs. Easy to use development tools enable designers to select configurable library elements to provide analog functions such as amplifiers, ADCs, DACs, filters and comparators and digital functions such as timers, counters, PWMs, SPI and UARTs. The PSoC family's analog features include rail-to-rail inputs, programmable gain amplifiers and up to 14-bit ADCs with exceptionally low noise, input leakage and voltage offset. PSoC devices include up to 32KB of Flash memory, 2KB of SRAM, an 8x8 multiplier with 32-bit accumulator, power and sleep monitoring circuits, and hardware I2C communications.

All PSoC devices are dynamically reconfigurable, enabling designers to create new system functions on-the-fly. Designers can achieve far greater than 100 percent utilization of the die, in many cases, by reconfiguring the same silicon for different functions at different times. Learn more about PSoC products at [www.cypress.com/psoc](http://www.cypress.com/psoc) and receive free online training at [www.cypress.com/psoctraining](http://www.cypress.com/psoctraining).

#### About Cypress

Cypress delivers high-performance, mixed-signal, programmable solutions that provide customers with rapid time-to-market and exceptional system value. Cypress offerings include the PSoC(R) Programmable System-on-Chip(TM), USB controllers, general-purpose programmable clocks and memories. Cypress also offers wired and wireless connectivity solutions ranging from its WirelessUSB (TM) radio system-on-chip, to West Bridge(TM) and EZ-USB(R) FX2LP controllers that enhance connectivity and performance in multimedia handsets. Cypress serves numerous markets including consumer, computation, data communications, automotive, industrial, and solar power. Cypress trades on the NYSE under the ticker symbol CY. Visit Cypress online at [www.cypress.com](http://www.cypress.com).

Cypress, the Cypress logo and PSoC are registered trademarks and PSoC Designer is a trademark of Cypress Semiconductor Corp. All other trademarks are property of their owners.

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#### Contact:

Cypress PR  
Don Parkman, 408-943-4885  
Email Contact

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Rating: ★★★★★



5000 NORTH US-131 · REED CITY, MI 49677  
(231) 832-5525 · www.natron.com

Smart Touch<sup>SM</sup>  
Keypad Part No. 1:10674

### GENERAL DESCRIPTION

Smart Touch<sup>SM</sup> sensing is a breakthrough in human interface technology providing direct access to computer power, such as with highly successful handheld devices. By combining the reliability and flexibility of completely solid state sensing along with "Anthrotronic"<sup>SM</sup> considerations, capacitive switching interface technology creates new automotive design opportunities.

Smart Touch<sup>SM</sup> enables a person to use fingers to control computer software through a display screen. A key feature of Smart Touch<sup>SM</sup> allows for multiple touches simultaneously or sliding fingers across a screen.\* Applications include the automobile IP, radio and HVAC controls.

### FEATURES

- Smart Touch<sup>SM</sup> ...
  - 1) unique and patented hardware-software provides under 3 millisecond operations.
  - 2) is a totally solid state design featuring (a) proximity sensing (b) touch implementation inherent within the technology. No moving parts.
  - 3) sense and control through nonconductive covering material such as glass, plastic, wood, etc.
  - 4) may incorporate multiple-input sensing, slewing of touch area, and automatic shutdown or lockout function.
  - 5) can operate on AC or DC. Controls resistive as well as inductive loads. The versatile system can control fluorescent fixtures and electric motors.
  - 6) uniquely lends itself to multiplex systems since its solid-state switching operates at logic levels and can interface directly with electronic controllers.
- High density "keyboarding" allows compact control configurations
- Totally sealed system operation at virtually any humidity level
- Switch function is independent of surface graphics and provides a new level of design freedom since the overlay surface is not part of the switch. Deadfront backlit applications are optional.

Integrated SENSE · COMPUTE · CONTROL Systems

\*patented and patented by Natron Corporation  
Smart Touch<sup>SM</sup> and Sense Compute Control<sup>SM</sup> are registered trademarks of Natron Corporation.

RENGAD 800-831-6889

DEPOSITION  
EXHIBIT

PET. Ex 16

9-2-10 AS

[54] TOUCH CONTROL SWITCH CIRCUIT  
 [75] Inventor: **Ronald D. Ingraham, Quincy, Mich.**  
 [73] Assignee: **Natron Corporation, Reed City, Mich.**  
 [21] Appl. No.: **913,084**  
 [22] Filed: **Sep. 29, 1986**  
 [51] Int. Cl.<sup>4</sup> ..... **H01H 35/00**  
 [52] U.S. Cl. .... **307/116; 307/308; 307/632; 200/DIG. 1**  
 [58] Field of Search ..... **307/116, 125, 252, 308; 315/34, 74, 208, 246, 362; 318/345, 446; 323/19, 24; 328/5; 200/DIG. 1**

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*Primary Examiner*—William M. Shoop, Jr.  
*Assistant Examiner*—Sharon D. Logan  
*Attorney, Agent, or Firm*—Price, Heneveld, Cooper, DeWitt & Litton

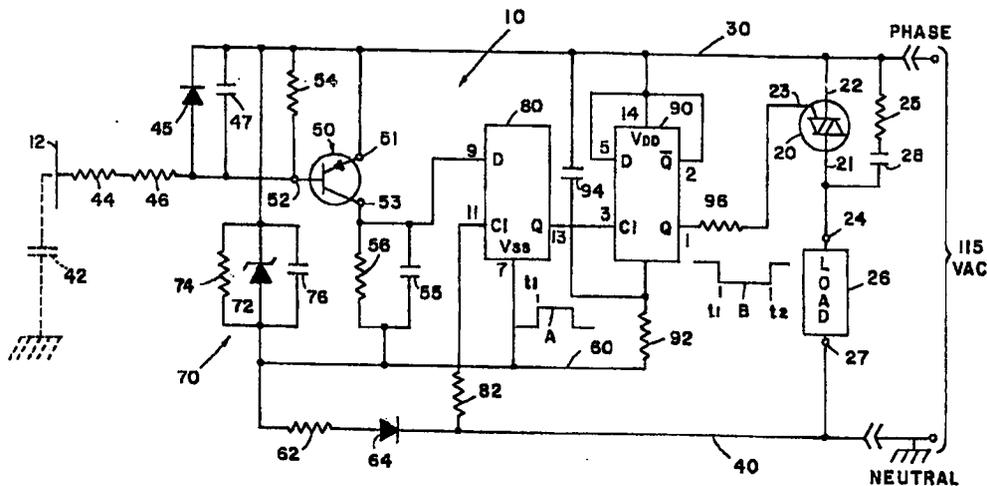
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[57] **ABSTRACT**

A touch controlled electronic switching circuit in which the body capacitance of the person actuating the device is coupled in series with current limiting resistors and a capacitor with the junction coupled to a logic circuit which responds thereto to provide a direct current control signal. The logic circuit has an output coupled to the gate terminal of a Triac coupled to a load for selectively applying current to said load during both half-cycles of each cycle of the line voltage supplied to the Triac and load.

19 Claims, 1 Drawing Figure



DEPOSITION  
 EXHIBIT  
 PET. EX. 17  
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## TOUCH CONTROL SWITCH CIRCUIT

## BACKGROUND OF THE INVENTION

The present invention relates to an electrical circuit and particularly to a touch controlled electrical switching circuit.

There exists a variety of electrical switching circuits which respond to a person's touch on a touch pad which can be in the form of a lamp base or a specific surface area of an electrical appliance to be actuated. Such circuits represent a convenient manner by which a consumer can easily operate appliances without the need for manually actuating a conventional toggle, push-button or other type switch. Touch controlled electrical switching circuits have become increasingly popular; for example, in use in controlling table lamps, floor lamps and the like although they have other applications as well. U.S. Pat. Nos. 4,119,864 and 4,360,737 are representative of existing touch controlled switch circuits. Typically, such circuits employ the human body as an antenna for picking up 60 Hz radiation existing in an environment by virtue of the line frequency power in the building and utilizes the induced voltage as a trigger signal for controlling the touch controlled electrical circuit. Such systems, however, can suffer from erratic operation due to variations in the nature of the ambient 60 Hz field and the physiological makeup of the person utilizing the system. Also the prior art systems typically utilize a pulse control for controlling a solid-state switch such as a Triac to be conductive only during a portion of each cycle of operation of the AC power supply thereby reducing the efficiency of such systems.

## SUMMARY OF THE PRESENT INVENTION

The system of the present invention provides an improved touch controlled electronic switching circuit in which the body capacitance of the person actuating the device is coupled in a voltage dividing circuit employed to provide a logic output signal for controlling a DC trigger level applied to a Triac or other bilateral solid-state switch coupled between the line voltage source and a load to be controlled. In the preferred embodiment of the invention, the body capacitance is coupled in series with current limiting resistors and a second capacitor with the junction coupled to a solid-state switch for providing a control output signal to a logic circuit which responds thereto to provide a direct current control signal. In the preferred embodiment of the invention also, the logic circuit includes a D-flip/flop circuit having its output coupled to the input gate terminal of a Triac for providing a direct current control signal during each half-cycle of each cycle of the line voltage supplied to the Triac and load.

Such a circuit provides improved reliability of operation since it does not rely upon induced voltage for its operation. Further, by utilizing a direct current control signal for the solid-state switch, the Triac switch is rendered conductive near the beginning of each half-cycle of operation and remains conductive during each half-cycle of each cycle of operation. Thus, through a DC gate signal, inductive loads such as fluorescent lights, motors, etc., may be controlled. These and other objects, features and advantages of the present invention can best be understood by reference to the follow-

ing description thereof together with reference to the accompanying drawing in which:

## BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is an electrical circuit diagram in schematic form of the system of the present invention.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

In FIG. 1, the electrical circuit 10 for providing a touch controlled electrical switch is shown and includes a touch plate 12 as its control input element which is touched by a person for actuation of the electrical switching circuit. The switching circuit includes a bidirectional solid-state switch 20 such as a Triac having one power terminal 21 coupled to the one side of the typically 115 volt 60 Hz AC supply line 30 and its remaining power terminal 22 coupled to one terminal 24 of a load 26 to be controlled. The remaining terminal 27 of the load is coupled to the line neutral conductor 40. A series spike suppression resistor 25 and capacitor 28 are coupled across the Triac 20 to prevent false turn-on.

The circuit 10 may include a plug which connects directly into, for example, a wall socket to provide connections for lines 30 and 40 to the building's wiring system and a socket for receiving terminals 24 and 27 of a load 26 such as a lamp to be controlled. The circuit 10 may be built directly into, for example, a base or other mechanical structure associated with a lamp or other appliance and wired directly as shown in FIG. 1 with a plug for plugging directly into a power outlet of the building's power supply system.

The touch plate typically is a conductive element which is insulated from the remaining body or the like of a lamp base or other appliance and is in a location readily accessible by the user. The user's body includes a capacitance portion represented by capacitor 42 in FIG. 1 which may range in a typical person from between 100 to 300 picofarads. When a person touches touch plate 12, this body capacitance is coupled to a series voltage dividing circuit coupled to the AC supply and including at least one other capacitor 47. The touch plate or terminal 12 is coupled to one terminal of a first resistor 44 serially coupled to a second resistor 46 having its terminal remote from resistor 44 coupled to the base terminal 52 of a solid-state switch 50 comprising a PNP transistor. Base 52 is also coupled to line supply conductor 30 by a first diode 45 having a cathode coupled to the conductor 30 and an anode coupled to base terminal 52. Capacitor 47 is also coupled between base terminal 52 and line 30 and is coupled effectively in series with body capacitor 42 to form a capacitive voltage divider including series resistors 44 and 46 between conductor 30 and ground which also corresponds to the ground conductor 40 of the building's supply line. The emitter terminal 41 of transistor 50 is coupled directly to conductor 30 while the collector terminal 53 is coupled to a capacitor 55 coupled in parallel with resistor 56 and having their terminals remote from collector terminal 53 coupled to a negative DC supply conductor 60 which is coupled to the neutral or ground conductor 40 through a resistor 62 and series coupled rectifier diode 64 as shown in FIG. 1.

Transistor 50 is biased in a normally nonconductive state by a resistor 54 coupled between base terminal 52 and emitter terminal 51 such that in the absence of body capacitance 42, transistor 50 will be nonconductive and capacitor 55 will be discharged by bleeder resistor 56

such that the output signal present at collector terminal 53 of transistor 50 will be a logic zero or low level. This input circuit thus will provide a first control output signal which is at a logic low level when plate 12 is not touched and a second level or logic high level when the plate 12 is touched. The touching of plate completes an AC voltage divider between line 30 and 40 including series capacitors 47 and 42 with resistors 44 and 46 serially. Thus with the presence of capacitor 42, the AC voltage at the base 52 of transistor 50 during the positive half-cycles of the line voltage will be decreased to forwardly bias the emitter-to-base junction thereby rendering transistor 50 conductive. The collector current thus charges capacitor 55 to provide a positive voltage level or logic "1" output signal for application to circuit 80.

Resistors 44 and 46 should each have a resistance of at least 1 megohms, and in the preferred embodiment of the invention, each have a value of 4.7 megohms which provides isolation between touch plate 12 and supply line 30 so that no harmful electrical current can be supplied to a person touching plate 12. Two serially coupled resistors are employed in the unlikely event that one resistor could short out, the second resistor continues to provide protection for the user of the circuit. Capacitor 47 was a 0.01 Mfd capacitor in the preferred embodiment. Diode 45 prevents the base-to-emitter junction of transistor from being subjected to reverse breakover voltages.

A 15 volt DC power supply 70 is included within circuit 10 for providing power to the logic circuits 80 and 90. Supply 70 includes resistor 62 and diode 64 and a voltage regulator circuit including a 15 volt Zener diode 72 coupled in parallel with a resistor 74 and capacitor 76. One terminal of this parallel combination is coupled to conductor 30, as shown, while the remaining terminal is coupled to DC supply conductor 60 which applies a negative 15 volt DC for the logic circuit now described.

The logic circuit coupled to transistor 50 and to the gate terminal 23 of Triac 20 comprises a two-stage commercially available 4013B integrated circuit having one half coupled as a squaring circuit 80 and the second half coupled as a conventional D-flip/flop circuit 90. The terminal identification numbers on circuits 80 and 90 are the standard commercial identification numbers of the integrated circuit.

The squaring circuit 80 responds to positive going 60 Hz clock pulses from conductor 40 through current limiting resistor 82 which pulses are applied to the clock input terminal 11 of the circuit. The squaring circuit also receives the control signal from the collector of transistor 50 present across resistor 56 which is applied to input terminal 9 which is the D input of the circuit. Circuit 80 responds to a positive signal on input 11 when body capacity 42 is present to provide a positive pulse at the Q output terminal 13. This signal is shown by waveform A in the FIG. and has a pulse width corresponding generally to the length of time plate 12 is touched. Pulse A is applied to input terminal 3 of circuit 90 which has its SET terminal 6 coupled to conductor 60 through resistor 92 and to conductor 30 through capacitor 94 such that when initial power is turned on, this voltage divider holds the SET terminal in a high state assuring that the Q output at terminal 1 remains high and therefore the Triac 20 which is coupled to the Q output terminal 1 of circuit 90 through resistor 96 remains nonconductive when power is initially applied to the circuit. The D and  $\bar{Q}$  terminals 5 and 2, respec-

tively, of circuit 9 are intercoupled, while terminal 14 ( $V_{DD}$ ) of circuit 90 is coupled to line 30 as seen in the FIGURE.

#### OPERATION

Having described the components and their interconnection to form the circuit of the present invention, a description of a cycle of operation is now presented. As noted above, when power is initially applied to the circuit and there is no body capacitance 42 in the circuit, the biasing of the SET terminal of D-flip/flop 90 will maintain the Q output high and therefore the Triac 20 in the nonconductive state. When touch plate 12 is touched thereby adding capacitance 42, as noted earlier, transistor 50 is rendered conductive during the positive half-cycles of each cycle of the AC supply line voltage, thereby charging capacitor 55 and providing a positive output signal indicated by waveform A in the FIGURE at the Q output 13 of squaring circuit 80. This signal is applied to the clock input terminal 3 of D-flip/flop 90 causing the output terminal 1 to switch to the state of terminal 5 which on initial power up was at the low level. Thus, when plate 12 is first touched at a time  $t_1$ , a negative pulse indicated by waveform B in the FIGURE will be applied to the Triac 20 rendering it conductive and illuminating lamp 26 or applying power to whatever appliance is coupled to terminals 24 and 27.

When the user removes contact with touch plate 12, transistor 50 is nonconductive and capacitor 55 discharges through resistor 56; however, the D-flip/flop 90 is latched and output 1 remains at a direct current low level and the Triac 20 remains conductive during each half-cycle of each cycle of the applied line frequency voltage. The next time, however, touch plate 12 is touched, generating a second positive pulse on input terminal 9 of squaring circuit 80, a second positive pulse also indicated by waveform A is applied to terminal 3 of circuit 90. The flip/flop circuit 90 responds to change states and provide a positive going edge to waveform B indicated at time  $t_2$  in the Figure, thereby turning the Triac 20 off and extinguishing lamp 26. Thus, alternate touches of plate 12 will cause flip/flop 90 to change states for providing the control pulse to the Triac 20. Waveform B provides a continuous DC signal as opposed to alternate half-cycle pulses thereby rendering the Triac conductive during the entire cycle of line frequency voltage applied between conductors 30 and 40 which efficiently provides power to lamp 26. A suitable adjustable time delay and reset circuit can be coupled between the squaring circuit 80 and triac 20 to provide an adjustable duty cycle of power to load 26.

The circuit of the present invention therefore provides a relatively inexpensive and efficient circuit in which operation is improved by providing an AC voltage dividing network including the body capacitance as a controlled element and a DC control signal for the gate of a bidirectional switch such as a Triac. The system utilizes a minimum of components with safety features for protecting the user. It will become apparent to those skilled in the art that various modifications to the preferred embodiment of the invention can be made without departing from the spirit or scope thereof as defined by the appended claims.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A touch controlled electric switching circuit comprising:

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a source of power for the actuation of a load to be selectively coupled to said source of power;  
 a controllable means for selectively coupling said source to a load; and

a control circuit including a series voltage divider input circuit including at least one capacitor having a first terminal connected to said source of power and an input touch terminal for coupling a person's body capacitance in series with said at least one capacitor such that the voltage across said one capacitor produced by said source of power is changed when said input touch terminal is touched and said control circuit provides a control output signal in response to the touching of said touch terminal which signal is applied to said controllable means for selectively coupling said source of power to said load.

2. The circuit as defined in claim 1 wherein said source of power is an alternating current source and wherein said controllable means comprises a first solid-state switch.

3. The circuit as defined in claim 2 wherein said input circuit is coupled to said source of power and includes resistance means coupled in series between said touch terminal and said at least one capacitor.

4. The circuit as defined in claim 3 wherein said resistance means comprises a pair of serially coupled resistors each having a resistance of at least 1 megaohm.

5. A touch controlled electric switching circuit comprising:

a source of power for the actuation of a load to be selectively coupled to said source of power;  
 a controllable means for selectively coupling said source to a load; and

a control circuit including a series voltage divider input circuit including at least one capacitor and an input touch terminal for coupling a person's body capacitance in series with said at least one capacitor such that the voltage between said one capacitor and said touch terminal is reduced when touched and said control circuit provides a control output signal in response to the touching of said touch terminal which signal is applied to said controllable means for selectively coupling said source of power to said load, wherein said source of power is an alternating current source and wherein said controllable means comprises a first solid-state switch, wherein said input circuit is coupled to said source of power and includes resistance means coupled in series between said touch terminal and said at least one capacitor, wherein said resistance means comprises a pair of serially coupled resistors each having a resistance of at least 1 megaohm and, wherein the junction of said at least one capacitor and said resistance means is coupled to a control terminal of a second solid-state switch coupled to said power source and responsive to the change in capacitance and resulting voltage change at said junction to provide a controlling signal.

6. The circuit as defined in claim 5 wherein said control circuit further includes a logic circuit having an input terminal coupled to said second solid-state switch and output terminal coupled to said first solid-state switch, said logic circuit latching in response to successive controlling signals for providing said control output signal.

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7. The circuit as defined in claim 6 wherein said logic circuit comprises a squaring circuit serially coupled to a D-flip/flop circuit.

8. A touch controlled electric switching circuit comprising:

a source of alternating current power for the actuation of a load to be selectively coupled to said source;

a first solid-state switch for selectively coupling a load to said source and having a control input terminal for receiving control signals; and

a control circuit including a touch plate responsive to the touch of an individual to provide a direct current control output signal applied to said control input terminal such that said first switch is rendered conductive during each half-cycle of each cycle of applied alternating current voltage, wherein said control circuit includes a series voltage divider input circuit including said touch plate and at least one capacitor having a terminal remote from said touch plate connected to said source of alternating current power for coupling a person's body capacitance in series with said at least one capacitor and said source of alternating current power such that said control circuit responds to the change in voltage across said one capacitor to selectively provide said direct current control signal.

9. The circuit as defined in claim 8 wherein said input circuit is coupled to said source of power and includes resistance means coupled in series between said touch plate and said at least one capacitor.

10. The circuit as defined in claim 9 wherein said resistance means comprises a pair of serially coupled resistors each having a resistance of at least 1 megohm.

11. A touch controlled electronic switching circuit comprising:

a source of alternating current power for the actuation of a load to be selectively coupled to said source;

a first solid-state switch for selectively coupling a load to said source and having a control input terminal for receiving control signals; and

a control circuit including a touch plate responsive to the touch of an individual to provide a direct current control output signal applied to said control input terminal such that said first switch is rendered conductive during each half-cycle of each cycle of applied alternating current voltage, wherein said control circuit includes a series voltage divider input circuit including at least one capacitor and said touch plate is coupled to said at least one capacitor for coupling a person's body capacitance in series with said at least one capacitor such that said control circuit selectively provides said direct current control signal, said source of power and includes resistance means coupled in series between said touch plate and said at least one capacitor, wherein said resistance means comprises a pair of serially coupled resistors each having a resistance of at least 1 megaohm and, wherein the junction of said at least one capacitor and said resistance means is coupled to a control terminal of a second solid-state switch coupled to said power source and responsive to the change in capacitance and resulting voltage change at said junction to provide a controlling signal.

12. The circuit as defined in claim 11 wherein said control circuit further includes a logic circuit having an

input terminal coupled to said second solid-state switch and output terminal coupled to said first solid-state switch, said logic circuit latching in response to successive controlling signals for providing said control output signal.

13. The circuit as defined in claim 12 wherein said logic circuit comprises a squaring circuit serially coupled to a D-flip/flop circuit.

14. A touch controlled electrical switching circuit for controlling power applied to a load, said circuit comprising:

a solid-state switch and means for coupling said switch between a load to be controlled and a supply of electrical power, said switch having a control input terminal; and

a control circuit including an input circuit and a logic circuit for receiving tactile command information from an operator and for providing a control output signal applied to said control input terminal of said solid-state switch, wherein said input circuit includes a touch terminal coupled to at least one capacitor having a terminal remote from said touch terminal coupled to the supply of power to define a voltage divider circuit with a person's body capacitance, said input circuit further including resistance means coupled in series with said touch terminal and said capacitor for limiting current to said touch terminal and voltage level responsive means responsive to said voltage divider circuit for causing said logic circuit to change the state of said control output signal.

15. A touch controlled electrical switching circuit for controlling power applied to a load, said circuit comprising:

a solid-state switch and means for coupling said switch between a load to be controlled and a supply of

electrical power, said switch having a control input terminal; and

a control circuit including an input circuit and a logic circuit for receiving tactile command information from an operator and for providing a control output signal applied to said control input terminal of said solid-state switch, wherein said input circuit includes a touch terminal coupled to at least one capacitor having a terminal remote from said touch terminal coupled to the supply of power to define a voltage divider circuit, said input circuit further including resistance means coupled in series with said touch terminal and said capacitor for limiting current to said touch terminal, wherein said input circuit further includes a second solid-state switch having a control input terminal coupled to said touch terminal and to the supply of operating power and responsive to the touching of said touch terminal for changing state.

16. The circuit as defined in claim 15 wherein said control circuit further includes a logic circuit including a latching circuit having an output terminal coupled to said control input terminal of said first named solid-state switch.

17. The circuit as defined in claim 16 wherein said resistance means comprises a pair of serially coupled resistors each having a resistance of at least 1 megohm.

18. The circuit as defined in claim 17 wherein said logic circuit includes a squaring circuit coupled to said latching circuit and said latching circuit comprises a D-flip/flop circuit.

19. The electrical circuit as defined in claim 18 wherein said first named solid-state switch comprises a Triac.

\* \* \* \* \*

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UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION

PATENT NO. : 4,731,548  
DATED : March 15, 1988  
INVENTOR(S) : Ronald D. Ingraham

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 2, line 56:

"terminal 41" should be ~~terminal 51~~

Column 2, line 64:

"shwon" should be ~~shown~~

Column 4, line 56:

"controlled" should be ~~controlling~~

Column 6, claim 8, line 4:

"electric" should be ~~electronic~~

Column 6, claim 11, line 55:

After "control signal" insert ~~wherein said input circuit is coupled to~~

Signed and Sealed this  
Twenty-fifth Day of October, 1988

*Attest:*

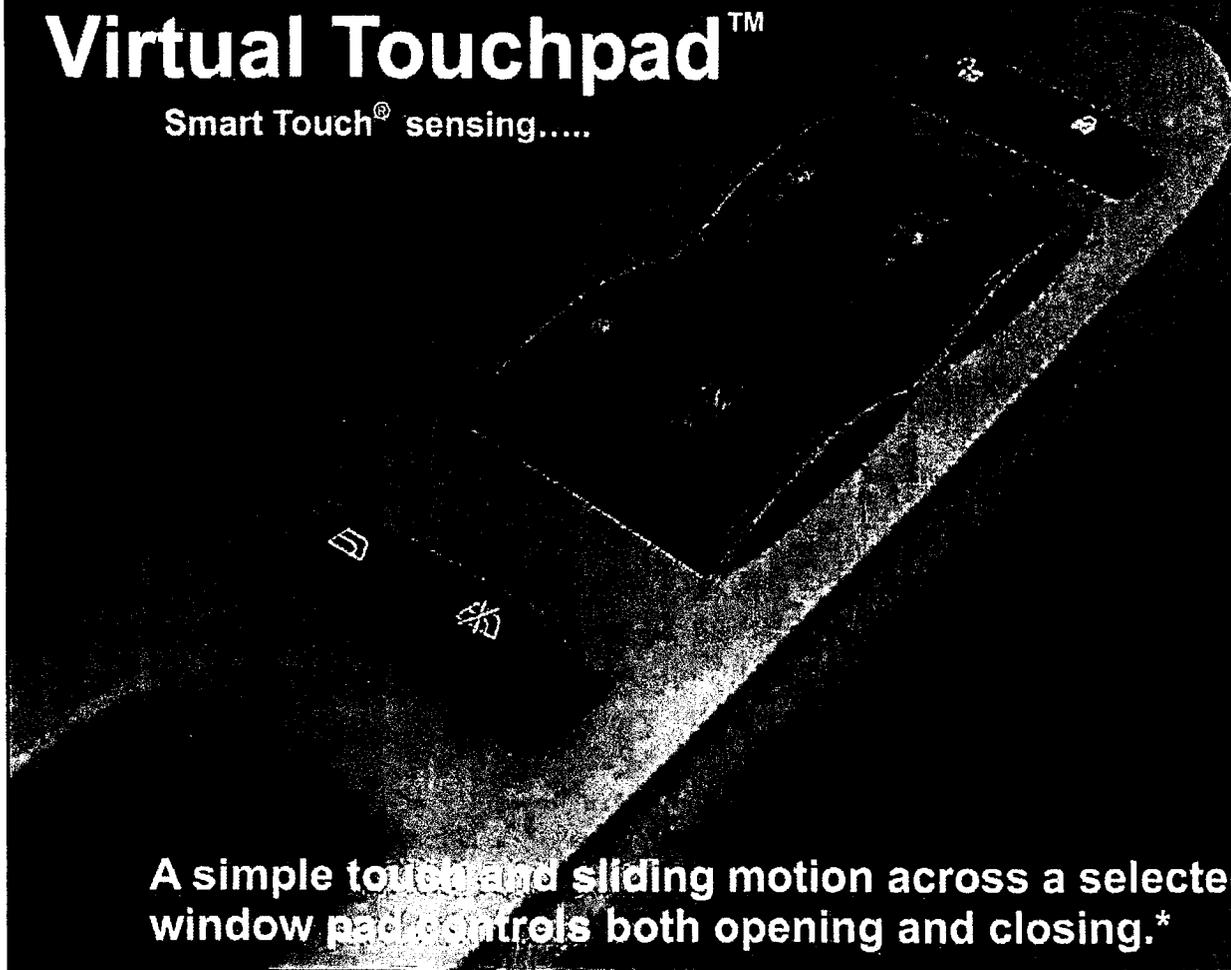
DONALD J. QUIGG

*Attesting Officer*

*Commissioner of Patents and Trademarks*

# Virtual Touchpad™

Smart Touch® sensing.....



A simple touch and sliding motion across a selected window pad controls both opening and closing.\*

## Manual operation:

Slide finger from front to rear (window down) or rear to front (window up) and hold until desired window position is achieved, then release.

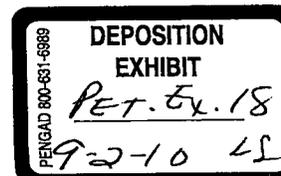


## Express operation:

Slide finger from front to rear (express down) or rear to front (express up) and remove finger from touchpad.

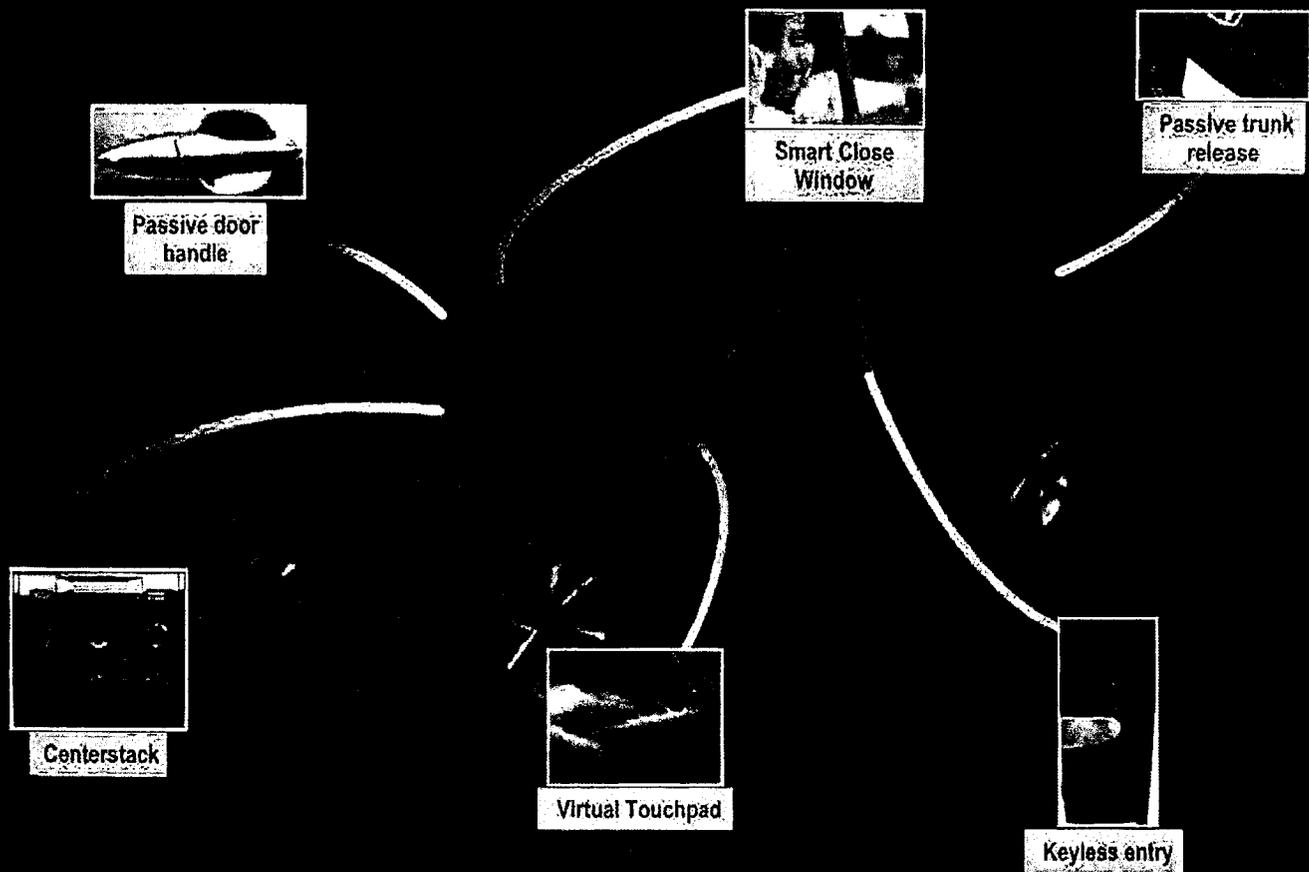


\*pioneered and patented by Nartron Corporation



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CORPORATION

by using intuitive gestures with the *Touch* of a finger to operate controls



Smart Touch<sup>®</sup> systems are intuitive, easy-to-use and able to provide a variety of functions while driving. This helps our customers concentrate on the road, while the safety of their passengers is ensured. Our systems can be tailored to fit any customer's specific needs.

### Key features of Smart Touch technology

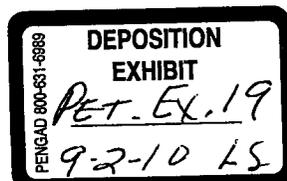
- MPA (multi-point activation; proximity or touch) provides zoom-in and zoom-out interactive displays
- Each sensor can accept multiple finger pinching, spreading, static and direction inputs, touch, hold, slide
- Sensing through multiple materials including gloves, plastics, metallic paint, etc.
- Differentiates various substances such as lotion, water, etc. to only allow intended human touch
- Surfaces may be curved, contoured or flat
- Changing switch appearance does not require retooling

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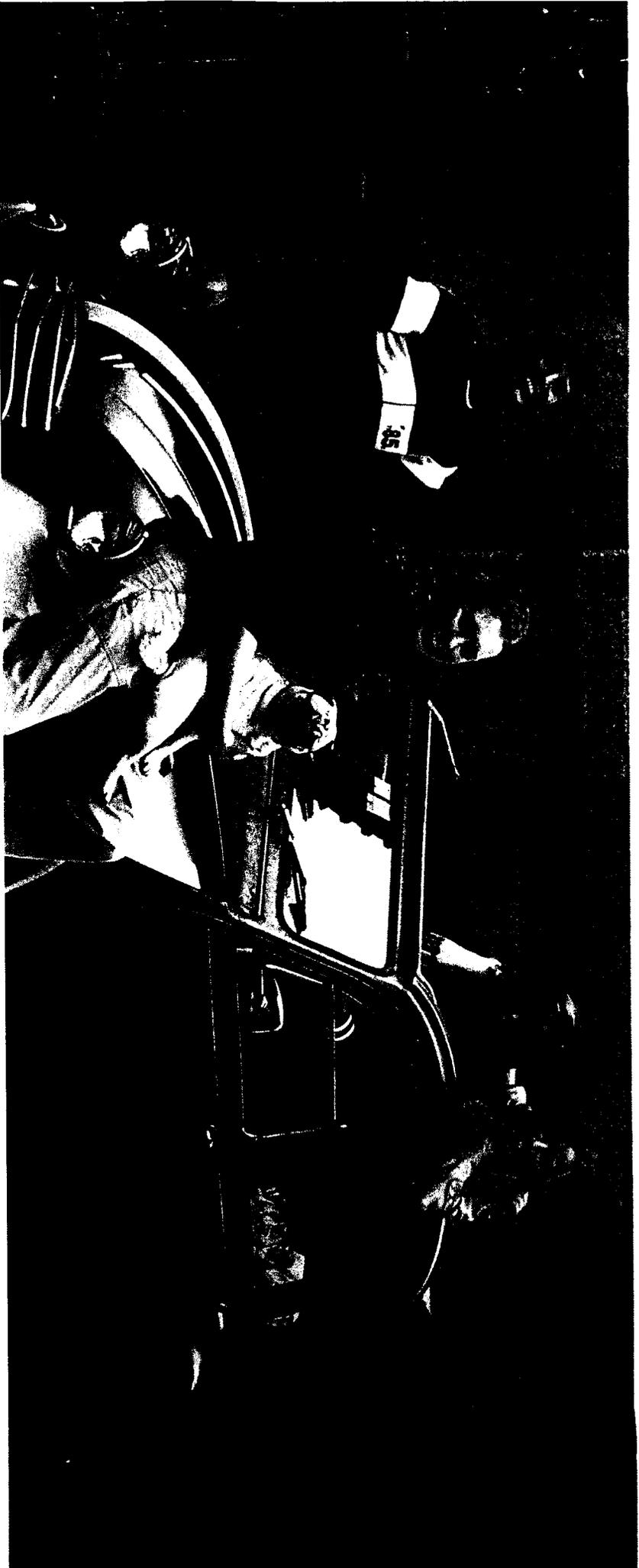
PENGAD 800-631-6989

DEPOSITION

EXHIBIT

Ret. Ex. 20

9-2-10 45



Decision-makers at automotive OEMs and Tier 1 suppliers are at a crossroads for the future of their companies. Excess capacity and ferocious competition, especially from low-cost entries into the global marketplace, are pressuring the bottom line and forcing a major re-evaluation of where margins can be increased, costs controlled, and market share gained or at least stabilized. Supply chains are growing more complex, and many OEMs find themselves unable to quickly meet market demands due to poor visibility into supply and demand chain dynamics, inflexible infrastructure and lack of common global business processes throughout their supply ecosystems. At the same time, empowered consumers expect more vehicle choices, a wider range of features, and better overall quality from the vehicles they purchase—all while demanding excellent fiscal value. They also want innovation, from rapidly refreshed or fully redesigned body styles to vehicle management systems and in-vehicle electronics that allow drivers and passengers to stay connected in more ways than ever before.

HP recognizes the industry challenges, and has identified where innovative business technology and proven best practices offer automotive manufacturers and their suppliers opportunities to improve collaboration, nurture innovation and drive efficient execution across their extended operations. The end-to-end HP automotive industry portfolio includes complete solutions as well as specific business technology capabilities that range from data management to product lifecycle management, supply chain visibility and optimization to high performance computing solutions for design simulations, logistics and customer service to warranty management, and more. Just as importantly, HP has broad and deep experience in developing and implementing modular, standards-based technology solutions for automotive manufacturers worldwide, as well as proven global delivery capabilities that reduce the risks and time frames for deployment and integration.

# HP for automotive

HP technology and services are used by virtually all leading automotive manufacturers and their suppliers worldwide. Continuing this tradition of delivering world-class business technology for automotive manufacturing, HP, along with its partners, continues to drive research into the solutions, capabilities, tools and technologies that help automakers and their suppliers achieve the business outcomes they seek. HP services address three imperatives for the automotive marketplace:

- **Innovation**

More than ever, innovation is the key to growing revenue and market share in a crowded marketplace. HP business technology helps streamline the product development process and shorten the time from concept to delivery. HP data management capabilities deliver a “single version of the truth” to all players along the value chain, making it easier to develop and migrate innovative features across the model line; HP product lifecycle management capabilities cut the development cycle by removing the technology barriers between designers and suppliers; and HP high-performance computing solutions control costs by enabling modeling simulations and other product design operations to run faster and with less drain on design resources.

- **Collaboration**

Automotive manufacturing is a deeply collaborative process; there’s a strong emphasis on working with other OEMs and auto suppliers to develop alternative fuel vehicles, new power train designs and in-vehicle electronics. HP capabilities and services speed collaboration for everything from new model development and assembly to logistics and warranty management, even across heterogeneous infrastructure and diverse geographies. Supply chain visibility solutions from HP improve transparency and accountability between suppliers and manufacturers; HP Halo studios effectively dissolve distance to bring engineers together no matter where in the world they are; and standards-based business intelligence and data warehousing capabilities from HP support common business processes across the enterprise, enabling faster sharing of accurate data between the design shop, the factory floor and the executive decision-makers.

- **Execution**

Cost pressures make operational excellence a necessity for today’s automotive companies. HP capabilities in areas such as data center consolidation and application modernization help companies increase asset utilization, enhance infrastructure reliability and improve efficiencies all across the organization, which can lead to significant savings that can then be reinvested toward innovation. Whether companies need to implement radio frequency identification (RFID) technologies capabilities to track spare parts for assembly or warranty management, or manufacturing execution systems to coordinate activities on the assembly line, HP has proven, low-risk solutions and best practices that decrease costs, improve reliability and availability, and help improve execution across the global manufacturing environment.

Solutions and services from HP are designed to help spur top- and bottom-line revenue growth, reduce costs and control risk. These solutions are based upon HP Manufacturing Industry Reference Architecture (MIRA), a service-oriented architecture (SOA) that provides a unified, structured and consistent framework for constructing an explicit bridge or “line of sight” between IT and the desired business outcomes. Areas of expertise include:

- Product development
- Manufacturing and quality control
- Sales, service and parts
- Supply chain and business services
- Enterprise infrastructure

**The success of HP supply chain strategy is proven every day.**  
HP operates one of the world’s largest global supply chains. Since late 2005, the optimization of the HP internal supply chain through best practices and technology deployments have brought dramatic improvements, including \$3 billion in operational savings.



## Product development

The message to automakers is clear—deliver exciting and engaging new products to market quicker, at an optimal price and with outstanding quality. To help automakers achieve these positive business outcomes, HP offers a range of innovative business technologies and services that builds excellence in the product development process from end to end.

Some key HP solution and capability areas for automotive product development include:

- **Master data management/information lifecycle management for automotive**  
To large extent, automotive design and manufacturing have become data-driven industries. OEMs and Tier 1 suppliers are increasingly inundated with data streaming from across the enterprise, from collaborative partners, suppliers and customers. Thousands of categories of data may need to be analyzed, shared and managed. Companies that are able to successfully turn this data into actionable insight will gain competitive advantage.  
HP master data management (MDM) capabilities address acquisition, management and integration of data from across today's global automotive manufacturing supply and demand chains. A unified strategy is applied for the three phases of data management—capture, storage and distribution—for improved accuracy, accessibility and cost-effective control over the data. By helping automotive manufacturers arrive at a "single version of the truth," HP Master Data Management solutions enable faster, more informed decision-making across the extended automotive enterprise. HP Information lifecycle management (ILM) solutions are designed to reflect that the business value of data changes over time. HP ILM solutions migrate data to lower-cost storage as appropriate, saving money while enabling the data to remain available as needed for optimal business decisions.
- **Product lifecycle management (PLM)**  
Production runs for many vehicle models are becoming significantly shorter, with more buyers looking for customized configurations or niche vehicles that better fit their specific commercial requirements or personal lifestyles. These shorter product lifecycles are stressing the capabilities of legacy processes, infrastructure and applications, demanding greatly enhanced collaboration between product designers, parts and subassembly contractors, and all value chain partners who may be scattered around the globe.

Drawing upon a repository of field-proven best practices and standards-based, modular components that easily integrate with existing infrastructure, HP can design and implement a next-generation PLM strategy that can help companies respond faster to new market opportunities. The HP PLM portfolio includes:

- **HP Product Lifecycle Management Appliance**, a scalable solution featuring hardware, software and services that promote secure data consolidation and management for seamless, remote collaboration. By enhancing the speed and accuracy of data management and transfer, new product design windows can be shortened.
- **HP Product Lifecycle User Simulation (PLUS)**, a simulation environment for testing product development processes featuring workshops and data modeling tools that help demonstrate the benefits and potential pitfalls of the initiative before full roll out occurs. This environment also establishes a foundation for the development and launch of maintenance and future services.
- **HP Software for PLM** allows comprehensive management, monitoring and testing for the end-to-end PLM environment. PLM depends on a stable, reliable, high-performance infrastructure for optimal availability and response. HP business technology optimization (BTO) products enable IT to manage the end-to-end PLM environment, increase application performance and availability and optimize PLM infrastructure through automated maintenance and testing.

#### • **High-performance computing for the automotive industry**

HP provides a portfolio of high-performance computing solutions that help product design teams improve productivity, collaboration and design validation capabilities. High-speed visualization tools allow design teams to construct, test and modify simulated models rather than time-consuming clay models. Offerings span low-cost single-CPU systems to high-end, switched-mode power supply systems and clustered computing solutions comprising hundreds of nodes and thousands of processors and multiple operating environments, as well as fully managed, on-demand computing resources.

#### • **Halo Studio**

Geographically-dispersed automotive companies and their suppliers must collaborate efficiently across the entire ecosystem. HP Halo Studios help companies work together around the world without ever leaving the office by allowing meeting participants to transparently share charts, diagrams and schematics across the highly secure Halo Video Exchange Network, a dedicated, delay-free fiber-optic network. Halo Studios allow companies to collaborate globally, which translates into quicker release of new models at lower cost and reduces the need for, or the impact of, engineering changes.



## Manufacturing and quality

Central challenges for manufacturing and quality control include enhancing flexibility to handle multiple models on a single assembly line, integrating diverse systems, increasing the commonality of processes and systems, and ensuring consistent product quality across geographically and culturally diverse global manufacturing operations. Business technology systems need to be integrated, secured and made more reliable and available.

HP can quickly construct complete, end-to-end solutions comprised of modular, off-the-shelf components that produce rapid return on investment. Proven, standards-based HP business technology components and services enhance execution by tying together enterprise resource management, product lifecycle management, supply chain and other systems into a cohesive whole. These capabilities improve visibility and control over business information, enabling better execution of business processes and encouraging optimal business outcomes.

Key HP capabilities and solution areas for manufacturing and quality include:

- **Manufacturing execution systems**  
HP offers system integration and high-performance data management strategies and technical capabilities, including providing seamless integration and connectivity for equipment and IT systems on the factory floor with enterprise-level applications and executive dashboards for real-time visibility of key performance indicators. This integration at the factory floor level minimizes downtime and maximizes production output.
- **Secure, high-availability infrastructure**  
HP solutions, components and services utilize high-availability, massively scalable infrastructure that has been pre-tested and pre-integrated for greater uptime under demanding conditions. Unified infrastructure management improves control over heterogeneous operating environments and applications, while energy-efficient consolidation and virtualization strategies concentrate computing density and reduce the costs of operations and maintenance. Proactive HP security strategies help certify that data remains safe and available for all business needs, as well as environmental and regulatory requirements.

- **Cross-enterprise integration**  
The move toward producing more vehicle models, but fewer units per model, means that manufacturers need greater flexibility. That requires integration across multiple enterprise systems, from assembly scheduling systems to workstation management systems to ERP systems. HP integration experts draw upon proven business technologies, such as Collaborative Business Infrastructure delivered in partnership with Microsoft®, as well as best practices to integrate data sources on the factory floor with factory-wide applications and within the overall enterprise and supply chain applications. Such cross-enterprise integration drives continuous process improvements that can enhance execution, reduce costs, shorten the time to deliver in-demand or assemble-to-order products to the dealer at the right time.

# Sales, service and parts

Total customer satisfaction depends on customer's dealer experience, product excellence and after-sales service. In addition to customer satisfaction, OEM profitability is impacted greatly by the effectiveness of its demand service chain. HP business technology capabilities can support automotive sales and customer service professionals worldwide by providing linkage between dealer, OEM, logistic providers, service providers and the consumer. These linkages provide sales, marketing, service, spare part division and the OEM designers with current, accurate information so that they can better serve their customers.

Key HP capabilities areas for sales, service and parts include:

- **Dealer systems**  
HP can help integrate and improve commonality among dealer systems, creating an adaptive infrastructure that optimizes the vital links between the consumer, dealer and OEM. This adaptive infrastructure helps to reduce business technology cost, improve security, reliability and availability of the system for the dealer and the OEM. This infrastructure also facilitates the delivery of the latest service details and software to the service points.
- **Service parts operations integration**  
Customer satisfaction and brand loyalty are very dependent on the effective management of aftermarket parts and services. HP business technology optimization capabilities can help to integrate and manage automotive OEM and suppliers' systems for aftermarket parts, and provide dependable solutions to link OEM and suppliers globally.

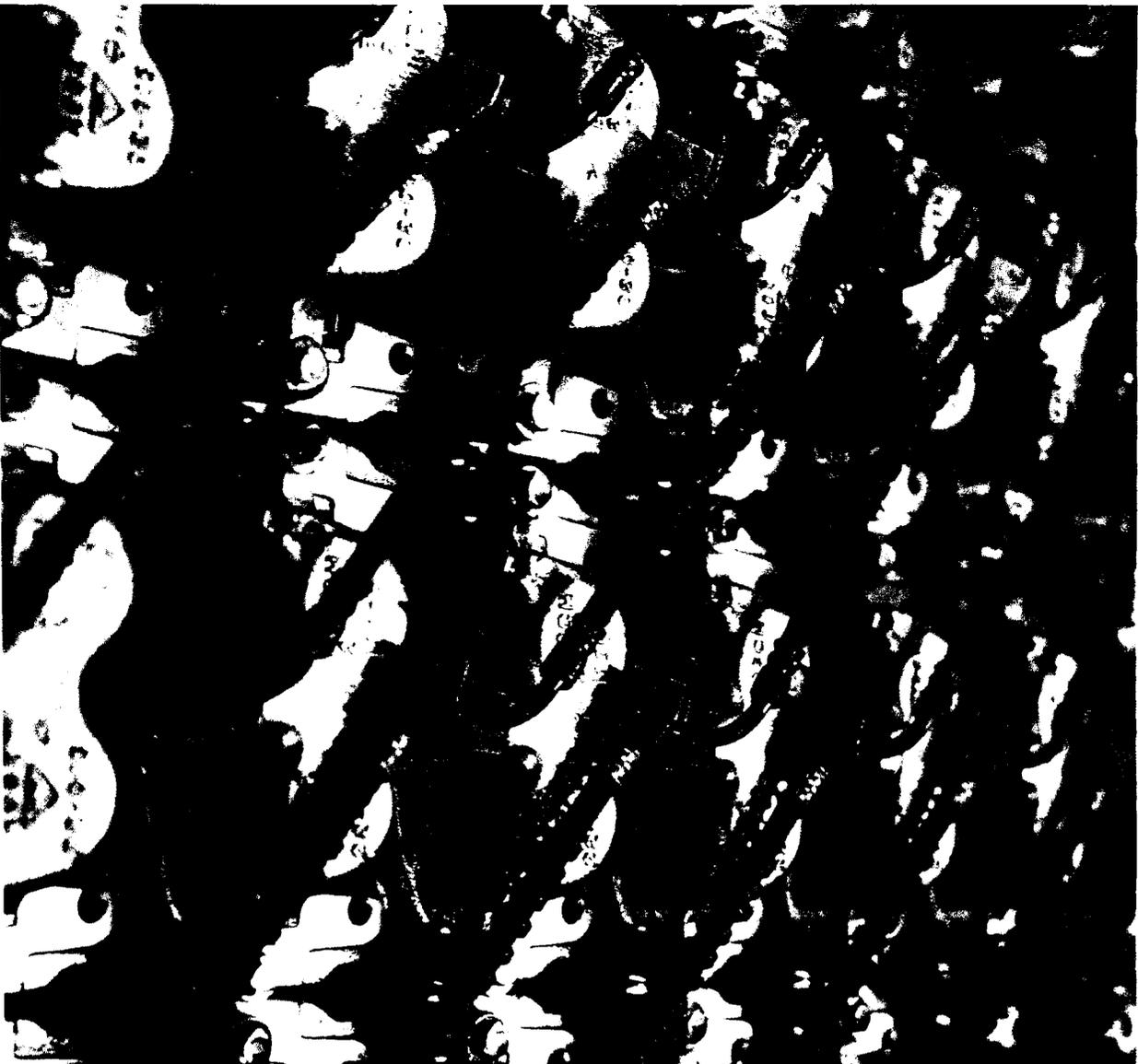
- **RFID capabilities**

As a world leader in RFID technology, HP offers RFID capabilities that can help improve efficiency and cut costs by tracking parts during assembly, work-in-process tracking of vehicles as they are built, and tracking the vehicle after assembly, with RFID (active, passive, ultra-wide band, Wi-Fi enabled), GPS and other relevant technologies.

- **Warranty management**

HP successfully manages the warranty demands of more than one billion customers in 170 countries, and HP has actually shown a notable decrease in warranty spending as a percentage of total costs over the past few years, due to the implementation of innovative warranty technologies and strategies.

The HP Warranty Solutions portfolio and warranty-related capabilities address the complete strategic, tactical and operational aspects of warranty management. HP utilizes both warranty functional modules and specialized warranty point solutions for such critical requirements as early warning, advance reporting, tracking and analytics.



## Supply chain and business services

Increase revenue, reduce cost and mitigate risk by improving collaboration, visibility and control over automotive supply chains that are expanding into new geographies and encompassing new partners. HP supply chain capabilities and services address the entirety of supply chain operations, from initial assessment and benchmarking of current operations to efforts to increase transparency and accountability to outsourcing of business processes to allow manufacturers to manage business outcomes while focusing on their core competencies.

The HP supply chain portfolio includes:

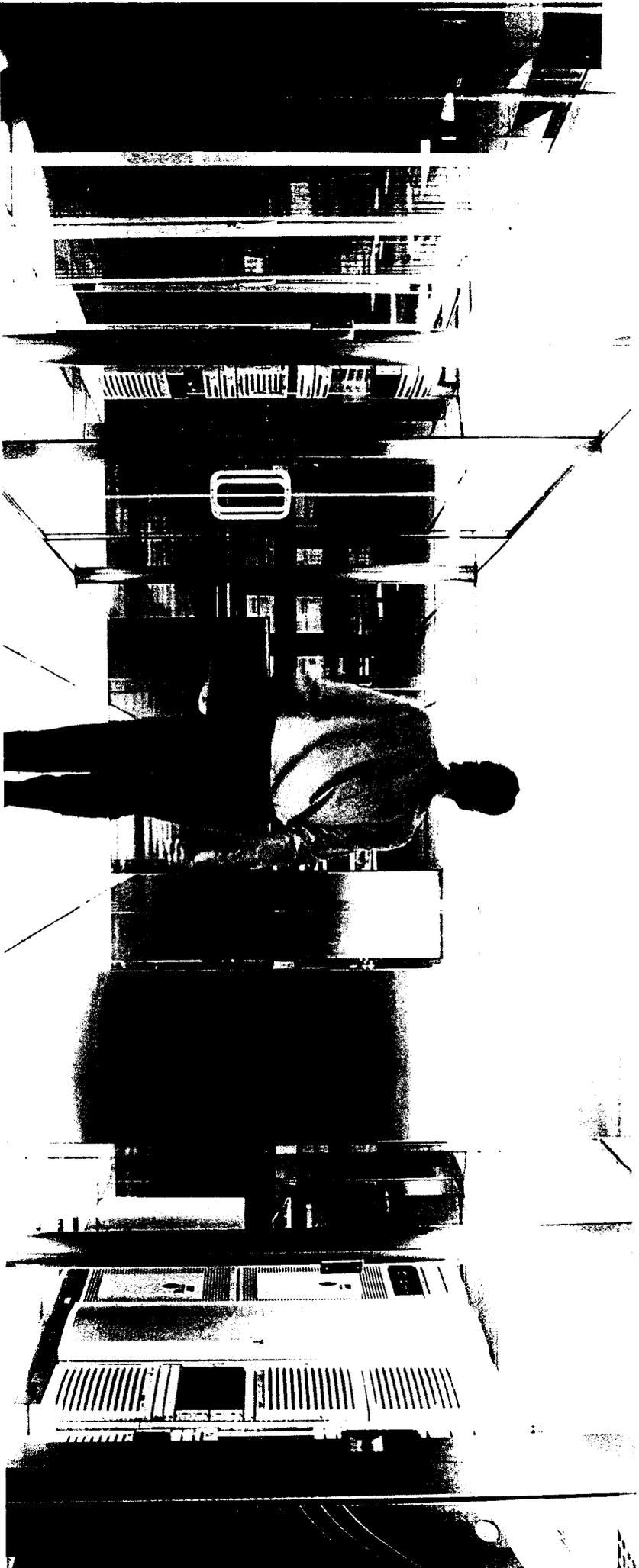
- **Supply Chain Assessment Services**

HP supply chain consultants measure current process flows and metrics data against industry best practices for procurement, logistics and global trade, as well as against desired business outcomes. The assessment services can enhance return on investment while lowering both risks and costs of supply chain evolution.

- HP is a SAP Global Services Partner, and runs one of the largest SAP installations in the world.
  - HP has been an annual winner of the SAP "Award of Excellence" since 1985, and was the first SAP partner to achieve 50,000 SAP application implementations.
  - HP has been rated #1 in customer support, outsourcing and responsiveness for mission-critical SAP environments by Gartner.
  - More than 50 percent of existing SAP small and medium business customers use HP systems.
  - HP is a market leader in SAP R/3 outsourcing services.
- **Supply Chain Visibility**  
 Visibility—the ability to know what's going on across the extended supply chain and take immediate corrective action when and where needed—is a key to thriving in the global automotive marketplace. HP Supply Chain Visibility capabilities combine key performance metrics, business processes, and proven best practices based upon the Supply Chain Council's Supply Chain Operations Reference (SCOR), and HP integrated global supply chain experience. Visibility also allows long-term supply chain optimization that enables improved strategic and operational decision-making and responsiveness.
  - **Enterprise Resource Planning—SAP**  
 HP is the leader in the SAP environment design, implementation and management, and HP also has significant experience and capabilities in implementing IS-Auto. HP solution and capability areas include application implementation and business technology infrastructure services, and encompass conventional SAP implementations, SAP Enterprise portals, and design and deployment of Advanced Planning and Scheduling (APS) solutions, along with other supply chain management and optimization solutions. This framework gives automotive manufacturing companies a roadmap for implementing ERP solutions that help streamline and integrate their businesses, improve collaboration and reduce risk.

HP capabilities for SAP include:

- SAP implementation  
 HP offers implementation, hosting and ongoing technical support for the mySAP Business Suite, from planning to deployment to management and operation of an efficient SAP R/3 system.
- SAP consolidation, upgrades and migration  
 Mergers, acquisitions and organic growth have resulted in decentralized, heterogeneous SAP landscapes, straining operational and maintenance budgets. HP helps automotive manufacturers consolidate, migrate, and upgrade their SAP environments, including providing support for key SAP NetWeaver capabilities.
- SAP Business Services Management (BSM)  
 Built on an enterprise service-oriented architecture (eSOA), HP BSM encompasses eSOA governance, quality and management, with elements for business process monitoring, governance and change management, test management and automation, synthetic transaction monitoring, and integrated incident management services. The solution is powered by the HP BSMconnect, Semi-Packaged Composite Application certified by SAP.



## Enterprise infrastructure

HP strategy for designing and deploying business technology infrastructure is centered on helping companies streamline collaboration, spur innovation and improve execution. To achieve their desired business outcomes, automotive manufacturers must lower the costs of maintaining inefficient infrastructure, implement enhanced infrastructure monitoring, and establish repeatable, consistent business and security policies. HP offers leading-edge business technology backed with comprehensive lifecycle services, such as planning, consulting, design, analysis and implementation, all designed to improve return on existing assets and increase the benefit from all future technology investments.

Key HP services and solution areas for enterprise infrastructure include:

- **Business technology consolidation**

HP business technology consolidation capabilities target redundant and inefficient data bottlenecks and help eliminate infrastructure sprawl by consolidating data centers, networks and other infrastructure islands into fewer, centralized locations. Massively scalable HP solutions enable faster reaction to evolving market conditions and opportunities, and can significantly lower the costs of real estate and energy. Further, they can help deliver to HP customers and their ecosystem partners high levels of data availability, accuracy and security, with easier and less costly management.

#### • Infrastructure and application management

The pace of business has never been more frenzied: shorter design cycles demand improved flexibility, efficiency and availability from manufacturing applications and infrastructure. Modular, standards-based HP solutions and components offer a proven approach with robust management and control features for streamlined management and control throughout the lifecycle of composite applications and services. Integration with other HP Software products and third-party tools is enabled for greater return on existing business technology assets. And HP also offers fully managed hosting services that can reduce the total cost of ownership (TCO), mitigate risk and increase the business value of application environments.

#### • Business continuity and availability

Automotive manufacturers depend on access to critical IT services and information. HP helps these customers prepare for a broad range of threats to the availability and stability of core infrastructure. These threats might include communications disruptions, problems with certain applications, scalability issues due to unexpected customer traffic volumes, and even natural or man-made disasters. Our holistic approach features a mix of proactive and reactive services, which is tailored to the specific requirements of each customer. Through this approach, HP can help control exposure and reduce vulnerability, harden mission-critical operations, and increase the speed of recovery should a major catastrophe strike.

### The HP advantage for automotive manufacturing

HP has a long history of supplying innovative technology and thought leadership to the automotive industry, and that legacy continues to grow. The HP solutions portfolio for automotive draws upon a large number of field-proven best practices that help drive innovation and improve collaboration, controlling costs while enhancing visibility and security all along the supply chain. HP focuses decades of expertise and partnerships with leading technology innovators into a powerful integrated team to assist the world's top automotive manufacturing organizations to meet their customers' needs.

- **HP has:**
  - A track record of helping clients recover from more than 5,000 disasters
  - One-stop shopping for solutions from planning to prevention to recovery
  - Global reach, with more than 50 internationally located recovery facilities
  - A collaborative approach that eases knowledge transfer
  - Best practices-based methodology to analyze, build, integrate, manage, and evoke continuity solutions
  - More experience with disaster-tolerant environments than any competitive vendor
  - Flexible contract terms that address changing IT environments and business needs

HP delivers solutions, technologies and services arrayed across network infrastructure, network services, operations and business support, mobile solutions and end-user access. These solutions and services are based on open standards and feature planned upgrade roadmaps and technologies that support diverse operating environments and geographies. With expertise in developing, integrating, testing, installing and supporting the most complex deployments, HP provides a one-stop shopping approach that allows manufacturers to remain focused on business. And every HP solution is backed with the HP global delivery pipeline and locally available and experienced implementation and support teams that help reduce the risks and time frames for solution deployment and integration.

These innovative capabilities have made HP a major business technology supplier that is leading change in the automotive manufacturing industry. As the automotive industry continues to evolve, HP will be there to provide the solutions and services that keep it moving forward.

### HP Services

Every HP solution leverages proven global experience that spans people, processes and technology. HP Services consultants understand the automotive industry, and can help companies get the most from their IT investments. HP Services can help in these critical areas:

- **Application Modernization Services**—These services offer a full range of mainframe transition services, current and future business need assessments, strategic and technological roadmaps for change, and monitoring services for the evolved application environments.
- **Mission Critical Support**—Onsite consulting and technical support is available at whatever level of service the organization desires, including Operational TSM to help benchmark IT processes against others.
- **Outsourcing Services**—HP offers a comprehensive portfolio of innovative and scalable sourcing options, so company personnel can focus time and resources on their core business.
- **Security Services**—HP has developed a detailed methodology for secure evolution of the manufacturing environment. Risk is minimized and both the data and the network are protected.
- **Financial Services**—HP Financial Services offers a range of creative and flexible financing options.

Across the globe, enterprise customers rely on HP Services to design, build, integrate and manage the IT systems that run their businesses. HP Services capabilities cover consulting and integration, outsourcing, support, and education services, all delivered by more than 69,000 services professionals in 170 countries. As the marketplace continues to evolve, HP Services will be there to help automotive OEMs and suppliers adapt and compete.

For more information: [www.hp.com/go/automotive](http://www.hp.com/go/automotive)

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4AA1-4190ENN, July 2007



i n v e n t



UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

FORM 10-K

(Mark One)

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended: October 31, 2008

Or

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from to

Commission file number 1-4423

HEWLETT-PACKARD COMPANY

(Exact name of registrant as specified in its charter)

Delaware  
(State or other jurisdiction of  
incorporation or organization)

94-1081436  
(I.R.S. employer  
identification no.)

3000 Hanover Street, Palo Alto, California  
(Address of principal executive offices)

94304  
(Zip code)

Registrant's telephone number, including area code: (650) 857-1501

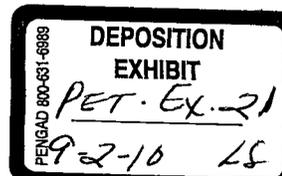
Securities registered pursuant to Section 12(b) of the Act:

<u>Title of each class</u>	<u>Name of each exchange on which registered</u>
Common stock, par value \$0.01 per share	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act:  
None

Indicate by check mark if the registrant is a well-known seasoned issuer as defined in Rule 405 of the Securities Act. Yes  No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes  No



Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 (the "Exchange Act") during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes  No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See definitions of "large accelerated filer," "accelerated filer," and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer       Accelerated filer       Non-accelerated filer       Smaller reporting company   
(Do not check if a smaller reporting company)

Indicate by check mark whether the registrant is a shell company (as defined by Rule 12b-2 of the Exchange Act). Yes  No

The aggregate market value of the registrant's common stock held by non-affiliates was \$114,540,461,000 based on the last sale price of common stock on April 30, 2008.

The number of shares of HP common stock outstanding as of November 30, 2008 was 2,416,201,335 shares.

**DOCUMENTS INCORPORATED BY REFERENCE**

**DOCUMENT DESCRIPTION**

Portions of the Registrant's notice of annual meeting of stockholders and proxy statement to be filed pursuant to Regulation 14A within 120 days after Registrant's fiscal year end of October 31, 2008 are incorporated by reference into Part III of this Report.

**10-K PART**

### **Sales, Marketing and Distribution**

We manage our business and report our financial results based on the principal business segments described above. Our customers are organized by consumer and commercial customer groups, and distribution is organized by direct and channel. Within the channel, we have various types of partners that we utilize for various customer groups. The partners include:

- retailers that sell our products to the public through their own physical or Internet stores;
- resellers that sell our products and services, frequently with their own value-added products or services, to targeted customer groups;

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- distribution partners that supply our solutions to smaller resellers with which we do not have direct relationships;
- independent distributors that sell our products into geographies or customer segments in which we have little or no presence;
- original equipment manufacturers ("OEMs") that integrate our products with their own hardware or software and sell the integrated products;
- independent software vendors ("ISVs") that provide their clients with specialized software products, frequently driving sales of additional non-HP products and services, and often assist us in selling our products and services to clients purchasing their products; and
- systems integrators that provide various levels and kinds of expertise in designing and implementing custom IT solutions and often partner with HPS to extend their expertise or influence the sale of our products and services.



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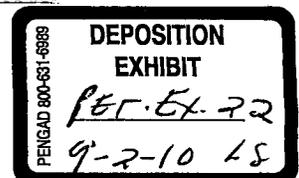
TTABVUE. Trademark Trial and Appeal Board Inquiry System

v1.5

**Summary**

**Query:** Mark Name contains all words: SMART TOUCH  
**and Proceeding Status is:** ALL  
**Number of results:** 13

<b>Proceeding Filing Date</b>	<b>Defendant(s) Property(ies)</b>	<b>Plaintiff(s) Property(ies)</b>
<u>91191565</u> 08/19/2009	<u>HID Global Corporation</u> <b>Mark:</b> SMARTTOUCH S#:77244896 <b>Mark:</b> SMARTTOUCH XTREME S#:77244893	<u>Nartron Corporation</u> <b>Mark:</b> SMART TOUCH S#:74168921 <b>R#:</b> 1681891
<u>92050789</u> 04/09/2009	<u>Hewlett-Packard Development Company, L.P.</u> <b>Mark:</b> TOUCHSMART S#:77197146 <b>R#:</b> 3600880	<u>Nartron Corporation</u> <b>Mark:</b> SMART TOUCH S#:74168921 <b>R#:</b> 1681891
<u>91153519</u> 11/06/2002	<u>AMERICAN MEDICAL ALERT CORP.</u> <b>Mark:</b> SMART TOUCH S#:76044477	<u>NARTRON CORPORATION</u>
<u>91153939</u> 10/28/2002	<u>SIGMA GAME INC.</u> <b>Mark:</b> SMART TOUCH S#:76322069	<u>NARTRON CORPORATION</u>
<u>76322069</u> 08/17/2002	<u>Sigma Game Inc.</u> <b>Mark:</b> SMART TOUCH S#:76322069	<u>Nartron Corporation</u>
<u>76044477</u> 08/15/2002	<u>AMERICAN MEDICAL ALERT CORP.</u> <b>Mark:</b> SMART TOUCH S#:76044477	<u>Nartron Corporation</u>
<u>91124240</u> 10/05/2001	<u>NATIONAL RURAL ELECTRIC COOPERATIVE ASSO</u> <b>Mark:</b> SMART TOUCH HOME S#:75861406	<u>NARTON CORPORATION</u> <b>Mark:</b> SMART TOUCH S#:74168921 <b>R#:</b> 1681891
<u>91150197</u> 10/02/2001	<u>VERIZON COMMUNICATIONS, INC.</u> <b>Mark:</b> SMARTTOUCH S#:75878785	<u>NARTRON CORPORATION</u> <b>Mark:</b> SMART TOUCH S#:74168921 <b>R#:</b> 1681891
<u>75878785</u> 08/13/2001	<u>BELL ATLANTIC CORPORATION</u> <b>Mark:</b> SMARTTOUCH S#:75878785	<u>Nartron Corporation</u> <u>NARTRON CORPORATION</u> <b>Mark:</b> SMART TOUCH
<u>91122299</u> 09/12/2000	<u>NATIONAL RURAL ELECTRIC COOPERATIVE ASS</u> <b>Mark:</b> SMART TOUCH HOME S#:75834666	<u>NARTRON CORPORATION</u> <b>Mark:</b> SMART TOUCH S#:74168921 <b>R#:</b> 1681891
<u>91117644</u> 03/08/2000	<u>BEVERLY J. SHUNICK &amp; ASSOC. LLC</u> <b>Mark:</b> SMART TOUCH S#:75488683	<u>NARTRON CORPORATION</u> <b>Mark:</b> SMART TOUCH S#:74168921 <b>R#:</b> 1681891
<u>91111972</u> 10/05/1998	<u>EMERSON ELECTRIC COMPANY</u> <b>Mark:</b> SMART TOUCH S#:75289221	<u>NARTON CORPORATION</u> <b>Mark:</b> SMART TOUCH S#:74168921 <b>R#:</b> 1681891



**Proceeding Defendant(s),  
Filing Date Property(ies)**

**Plaintiff(s),  
Property(ies)**

91084588 GTE SERVICE CORPORATION  
02/21/1991 **Mark:** SMART TOUCH **S#:**73812822  
**R#:**1722492

GOLDSTAR PRODUCTS CO., LTD.

Results as of 10/12/2009 04:55 PM

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Posted: 10:52 a.m. July 21, 2010 | Updated: 10:55 a.m. today

## GM gives \$2B contract to Hewlett Packard

BY GREG GARDNER  
FREE PRESS BUSINESS WRITER

General Motors has awarded a contract worth more than \$2 billion to Hewlett Packard to cover an array of information technology for GM facilities worldwide.

The new agreement covers product development software, maintenance of networks for desktop computers and mobile devices, supplier management and financial transactions. It also renews the contract one year early and extends the two companies' 25-year relationship.

"GM's innovative business and in-vehicle technology strategy requires collaborative, cost-effective approaches so we can provide even better service to our customers as we design, build and sell the world's best cars and trucks," said Terry Kline, GM's chief information officer. Historically, much of this work was provided to GM through its former subsidiary Electronic Data Services. HP acquired EDS in 2008 for about \$13.9 billion.

Advertisement

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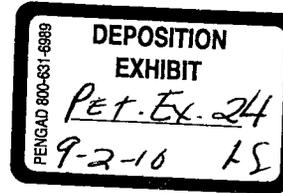
The new travel app for iPhone and iPod touch

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## Financial news

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### General Motors Renews \$2 Billion HP Enterprise Services Agreement Supporting Vehicle Design and Production

PALO ALTO, Calif., Jul 21, 2010 (BUSINESS WIRE) – HP Enterprise Services today announced it has been awarded a multiyear applications and infrastructure services contract valued at more than \$2 billion to help General Motors Company maintain focus on its business goals in a highly competitive market.

Under the terms of the agreement, HP (NYSE:HPQ) will manage GM's technology infrastructure with a focus on providing an enhanced and continuously improving world-class end-user experience - from manufacturing plants to the boardroom. HP will provide network, workplace, mainframe management, applications and systems integration services for GM's global operations, including OnStar.

The new agreement covers a significant portion of HP's existing work with GM. It also renews the contract one year early and extends the two companies' 25-year relationship.

"GM's innovative business and in-vehicle technology strategy requires collaborative, cost-effective approaches so we can provide even better service to our customers as we design, build and sell the world's best cars and trucks," said Terry Kline, vice president, IT, and chief information officer, GM. "HP has been one of our most long-term, reliable partners with a team that has the expertise and creativity to help us quickly and successfully complete new phases of our business strategy."

HP will provide applications and infrastructure management services in support of tens of thousands of desktop PCs and mobile devices as well as GM's manufacturing and supply chain operations. Services include:

- Providing applications development and management services for product development, manufacturing, business services, supply chain, OnStar and more.
- Integrating a converged infrastructure and overall technology roadmap that supports GM's multisupplier technology environment.
- Providing managed mainframe services for GM's major business systems, including financial transactions and supply chain.
- Delivering HP global service desk and site support services in more than 50 countries and languages.
- Providing total remote network management for data, network security and videoconferencing services.

"The automotive industry is in the midst of a transformation and GM's technology infrastructure needs to be hitting on all cylinders to take full advantage of the potential market opportunities," said Tom Iannotti, senior vice president and general manager, HP Enterprise Services. "HP has a track record of outstanding service to GM that we will continue to deliver to help GM realize their business objectives."

HP Agility Alliance partners, including Microsoft and PricewaterhouseCoopers, will provide additional tools, technologies and resources to HP in support of GM.

#### About HP

HP creates new possibilities for technology to have a meaningful impact on people, businesses, governments and society. The world's largest technology company, HP brings together a portfolio that spans printing, personal computing, software, services and IT infrastructure to solve customer problems. More information about HP is available at <http://www.hp.com>.

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[eric.krueger@hp.com](mailto:eric.krueger@hp.com)

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# HP in the Motor City

by jim.miller | 11/11/09 | last edited 11/11/09

Detroit, or the Motor City, is often called ground-zero for the current economic recession. Recently there has been some encouraging news to help change this perception. General Motors announced pricing and lease rates for the exciting new Chevrolet Volt with plans to increase production by 50 percent. U.S. auto manufacturers are also experiencing the strongest job growth in more than 10 years. HP will play an important part in General Motors' future. The recent \$2 billion HP technology services contract with General Motors utilizes workplace services, applications and systems integration services, as well as network and converged infrastructure components to help General Motors realize their business objectives and to bring technology innovation to the automotive industry. Innovation will be the foundation to transform the Motor City to meet future economic challenges.

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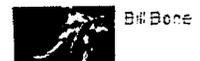
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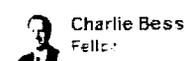
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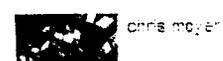
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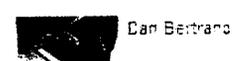
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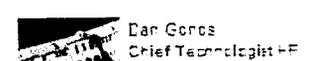
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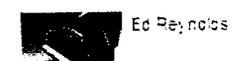
Dan Gonps

Chief Technologist - HP Fellow

Dan Gonps, an HP Fellow, is the chief technologist for HP Enterprise Services Global Healthcare. As a Fellow, Gonps leads the program activities for HP clients in healthcare and government worldwide. Gonps has more than 20 years of IT experience, including



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## HP in the Motor City

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Dan Bertrand



Dan Gonos  
Chief Technologist/HP Fellow

Dan Gonos, an HP Fellow, is the chief technologist for HP Enterprise Services Global Healthcare. As a Fellow, Gonos leads the program's activities for HP clients in healthcare and government worldwide. Gonos has more than 20 years of IT experience, including information technology strategy and planning, business and technology assessments, new business development, capacity and performance planning, performance review, software archeology, methodology development, and requirements definition and management. He is an expert in developing technological implementations of business process improvements through the application of best practices. In 2005, Gonos was named EDS

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Distinguished SE. As an EDS Distinguished SE, he worked on and assisted with significant EDS internal and external technological problems based on expertise, often acting as an applied technology expert leading largescale projects. Gonos was the chief technologist on EDS' Welfare Client Data Systems project since 1997. He is responsible for overall technical delivery of the CalWORKS Information Network (CalWIN) system. Previously, Gonos served as the lead architect for the Texas Department of Human Services Texas Integrated Enrollment System (TIES) project where he developed business process and technology innovations in government. Gonos joined EDS in 1986 as a trainee in the Systems Engineering Development Program. During his career with EDS, he has directed the development of numerous systems nationally including the EDS Eligibility Solution offerings where EDS' clients have won government and industry awards for technology and process innovation. Gonos is a member of the American Public Human Services Association (APHSA). Gonos is a featured speaker at industry conferences and has written numerous articles and publications. He holds two active U.S. patents and has four U.S. and European patents pending in the areas of data archival and recovery, capacity and performance planning, estimating, and multi-lingual document processing. Gonos earned a bachelor of science degree in computer science from San Francisco State University.



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Fred Cummins



Jamie Erbes



Jean Lehmann



Jeff Wacker



jim.miller  
Fellow

James Miller, an HP Fellow, is the chief technology officer for the General Motors account. He leads enterprise wide initiatives that shape the future of one of Hewlett Packard's largest clients. His responsibilities include building key client relationships, advising senior leadership on technology trends and initiatives, and providing oversight and thought leadership to effectively grow HP and client business. Miller develops global business and information technology strategies to transform the demanding global automotive environment.



joeh

Kas Kasravi



Larry Schmidt

Mateen Greenway  
Fellow

Mateen Greenway, an HP Fellow based in London, UK, is the chief technologist for the EMEA Defence, Security, Government & Healthcare industry. In this role, he is responsible for client innovation, evolving the industry vision & solutions as well as maintaining and growing a group of 100 highly skilled enterprise architecture consultants in support of high-profile bid engagements. Previously Mateen was the Chief Technologist for the EMEA Manufacturing Industry. Additionally, Greenway leads the EDS global architecture training program. The title of HP Fellow is awarded to the corporation's most innovative thought leaders in recognition of their exceptional achievements. Greenway has 25 years of experience in enterprise architecture, multi-year planning, enterprise modelling, security policies, mobile computing and enterprise application implementations. He has extensive experience in enterprise architecture development, government & healthcare, financial services, manufacturing solutions, desktop and mobility solutions, and architecture training disciplines. Mateen is qualified as a Distinguished Certified IT Architect under The Open Group ITAC Certification Program. Previously, Greenway served as the chief technology officer on a number of EDS' global accounts including SKF, Delphi Automotive, etc. He has also provided enterprise architect support for various pursuits and accounts, including the UK Justice agency, Rolls-Royce Aerospace, Bank Leumi and Kanebo Cosmetics. From 2002 to 2004, Greenway was the global chief technology officer for the EDS Delphi account. While there, he established the Innovation Council and led efforts to enhance the account's integrated account strategy. Prior to that, he had been the European chief technologist on the account since 1999. From 1995 to 1999, Greenway was the international chief technologist for the GMAC International account. Greenway was awarded the 2003 EDS Compass Award for Innovator of the Year for work on myCOE, part of the EDS Agile Workplace Services offering.

Mike Sarokin  
Fellow

Rene Aerdt

Terry White  
Enterprise Architect / Fellow

Currently based in Detroit, Michigan, USA, Terry is the HP ES Chief Architect for the OnStar account. He oversees a virtual team of over 25 Architects and Technical leaders who manage GM OnStar's infrastructure and systems. Terry has a background in Enterprise Architecture and Software Engineering. His business specialties include Supply Chain Management, Order Fulfillment and Customer Relationship Management.

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## The Challenge For Automakers

At every turn, automakers are facing complex challenges that threaten profitability:

- Excess capacity and inventory
- Shrinking margins
- Relentless demand for innovation and new features
- A rapidly expanding network of supply chain partners that present new headaches around ordering, procurement and scheduling
- The need to communicate more efficiently with our plants, dealers, OEMs and customers
- Increasing competition from around the world, and increasing deficiencies in existing systems and processes

## The Answer

It's not enough to build a better car. You have to build a better car company. And this task begins by building the information technology (IT) strategy, systems and solutions that enable you to react swiftly and nimbly to the ever-changing demands and opportunities the market presents.

With the right processes, you can create dramatic improvements in your plants and across the supply chain. With the right ally, you can offload the administrative burdens of noncore functions, leaving you free to focus on:

- Managing globalization
- Transforming core competencies
- Reducing costs
- Developing products that better meet the demands of the marketplace

With the right tools, you can take advantage of new opportunities in areas like online car sales, customer service, dealer relations and aftermarket support.

HP can help you get there.

## The Capabilities You Need

Currently, HP works with 21 of the top 25 Global automakers, helping them find effective and innovative ways to reduce costs, shorten time to market, create supply chain efficiencies, improve customer satisfaction and realize measurable improvements across their organizations. HP can help you succeed, too, by providing systems and solutions that are practical and effective and give you the agility and flexibility to respond to rapidly changing dynamics including:

- » Application Development Services

## The Results

Currently, HP has more than 20,000 IT professionals dedicated to the manufacturing sector, monitoring more than 4 million plant production points and 2,500 metrics monthly. Our working knowledge of every facet of the automotive industry helps our clients achieve meaningful results. For example:

- A European automaker developed and implemented a plan that not only cut customer call-center costs by 30 percent but also increased customer satisfaction by providing consistent responses and faster problem resolution.
- An international automaker set new records in online sales in South America, with nearly 70 percent of its most popular model sold via the Internet. Its online success also enabled the automaker to reduce prices by 6 percent.
- A luxury automaker's roadside assistance program streamlined its tracking, response and dispatch, raising customer satisfaction levels to 87 percent.

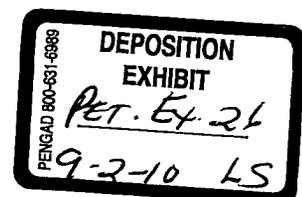
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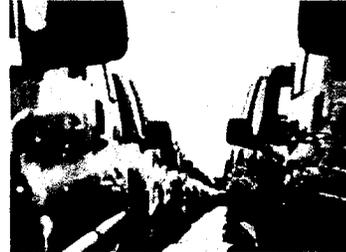
## HP/Intel: Simulation drives move to virtual prototyping for the automotive segment



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### Simulation Drives Move to Virtual Prototyping in the Automotive Industry

With the economy running on fumes, today's automakers are desperately trying to find some breathing room. Many best-in-class IT organizations find that by investing in cost-effective technology, they save money and increase efficiency. CAE simulations running on high performance blades are leading automotive companies through today's tough economic times and into a more competitive future.

With innovative technologies from Intel and HP, you can boost computational performance and lower costs. CAE solutions from Intel and HP will show you how to:

- Stop spending more money on simulations—and start spend it more effectively
- Meet evolving customer demands and government regulations without breaking the bank
- Make your company more competitive in the global economy

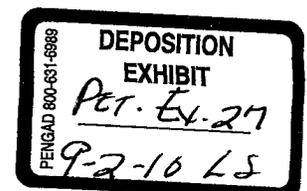
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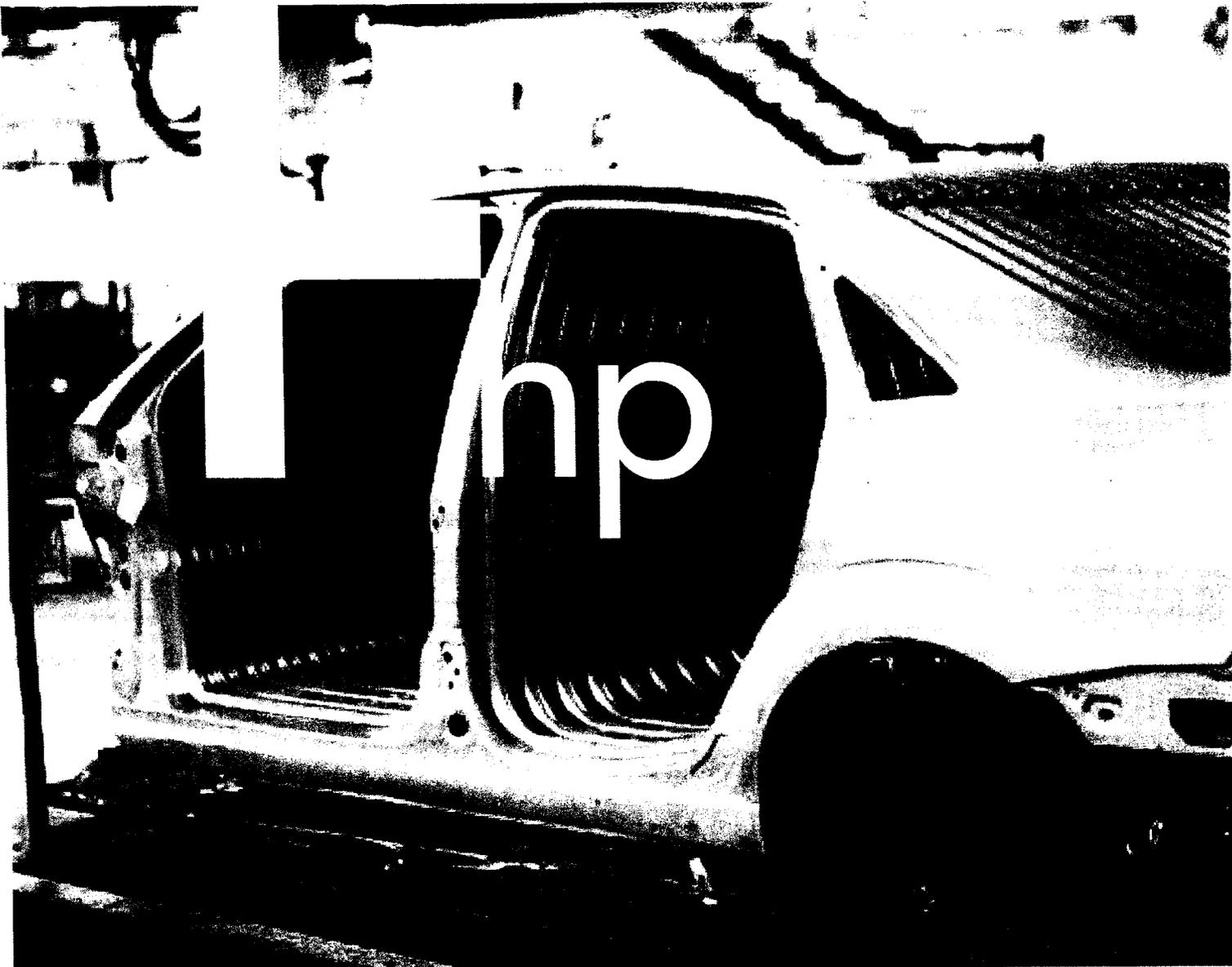
Visit our website below to learn how HP and Intel can help you find innovative solutions to survive today and thrive tomorrow, with results that are faster and more precise than you dreamed possible. Our white paper features special input from Keith Meintjes, PhD. An acknowledged automotive industry expert, Dr. Meintjes previously worked at General Motors (GM) where he was responsible for requirements for GM's global CAE High-Performance Computing (HPC) systems. Dr. Meintjes also participated in a variety of projects to integrate simulation and CAE into GM's vehicle and powertrain product development processes.

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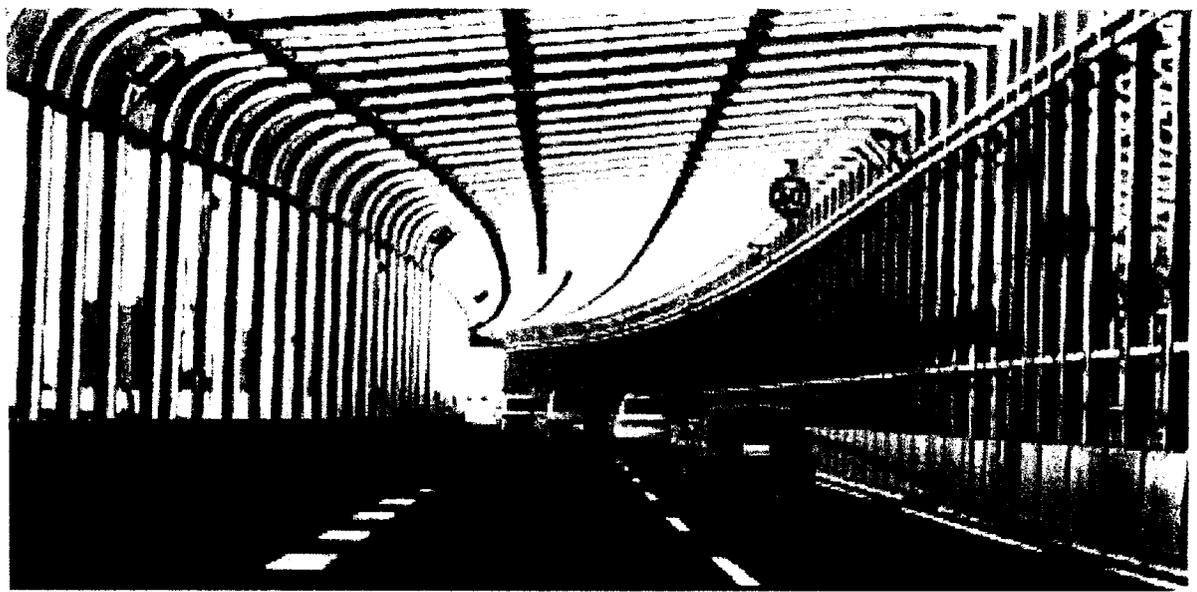




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Globally, the automotive industry is experiencing catalytic change.

Automakers and their suppliers face many significant challenges, including intense competition, excess capacity, and pressure to reduce costs in the supply chain. There is a growing need for virtual product design and faster time to market. Electronics and software in the vehicle require innovative solutions, as do new vehicle build-to-order capabilities. In addition, global markets are expanding, outsourcing is on the rise, and there is an increasing need for IT—but with decreasing IT dollars.

One of the ways companies can address these challenges is by building greater efficiencies into the business and IT environment. HP solutions for the automotive industry help companies create what we call an Adaptive Enterprise, where business and IT are synchronized to capitalize on change. In an Adaptive Enterprise, IT and business processes become truly integrated—in a way that fosters a flexible response to competitive pressures, market demands, and constant change. When applied to strategic areas of the automotive value chain—such as product design; procurement, supply, and manufacturing; and marketing, sales, and service—this approach allows a company to adapt quickly as customer, supplier, and business needs change.

HP solutions for the automotive industry can help automakers accomplish key goals such as reducing cost per vehicle, introducing new products and services faster, aligning production and delivery capacities with actual customer demand, and supporting expansion plans in new growth markets.

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#### HP solutions for radio-frequency identification (RFID)

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HP, an early adopter of radio-frequency identification (RFID) technology, deploys RFID technology in specific areas across its supply chain. HP can help companies develop RFID solutions for innovative uses in the automotive industry as well. With proven experience in RFID, HP provides the technology, solutions, and partnerships that can help automotive companies investigate areas where RFID can help them create greater efficiencies, lower costs, comply with mandates—and, in specific supply chain areas, increase competitive advantage.

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## Meeting today's challenges with experience and innovation

As a leading provider of IT business solutions to the automotive industry, HP works with companies in this industry, from OEMs to suppliers, and understands the most pressing challenges of the industry. We focus on meeting these challenges through the integration and collaboration of IT and business processes in pivotal points across the automotive supply chain.

### End-to-end solutions across the portfolio

HP solutions for the automotive industry span the full lifecycle of automotive products—from initial design, testing, procurement, and sourcing to manufacturing, warranty, and after-sale service. In each of these areas, HP provides consulting and system integration services as a comprehensive, full-service, end-to-end offering.

- Strategy and business consulting
- Process innovation and optimization
- IT organization and alignment; CIO function best practices
- System integration and global rollouts
- Information technology, including outsourcing
- Project and program management

## Product development and product lifecycle management

HP automotive solutions for product lifecycle management (PLM) are designed to help companies enable timely information flow within their organization and with suppliers by simplifying, securely exposing, and integrating the use of product and process data across all functions. These solutions address business process needs, employing PACE (Product and Cycle-time Excellence)-PLC Resource Management and CMil Configuration Management. In addition, they address application integration and deployment through PLM appliance and IT infrastructure solutions, including specific tuning, security, and manageability for PLM. HP partnerships in product development and product lifecycle management for the automotive industry include SAP, PTC, EDS, MatrixOne, Dassault, and Oracle.<sup>®</sup>

**Key benefit:** HP PLM services and solutions help automotive companies integrate processes and decrease time to market—while increasing collaboration and quality.

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## Manufacturing and extended supply chain

HP automotive solutions for manufacturing and extended supply chain are tailored to automakers' needs through strategic partnerships with companies such as SAP, Oracle, and Microsoft®. For example, the HP and SAP joint solution creates a streamlined, optimized supply chain that integrates end-to-end processes—from ERP, sourcing, and procurement to supplier collaboration and build-to-order manufacturing. These solutions include supply chain management solutions for the automotive industry, Collaborative Business Infrastructure (CBI.Net) services, and supply chain integration services.

**Key benefit:** HP solutions for manufacturing and extended supply chain help companies increase efficiencies, reduce costs across the supply chain, increase profitability, optimize processes, and reduce cycle time.

## Marketing, sales, and service

HP solutions for marketing, sales, and service help companies manage customer and channel relationships and extend customer loyalty by integrating customer interactions across multiple or many channels. These solutions include partnerships with SAP, Siebel Systems, and Oracle and address dealer management, dealer systems infrastructure, and telematics back-office systems and infrastructure.

**Key benefit:** HP solutions for automotive marketing, sales, and service help companies execute a flexible, scalable environment that enables long-term business and customer growth.

## Automotive enterprise integration

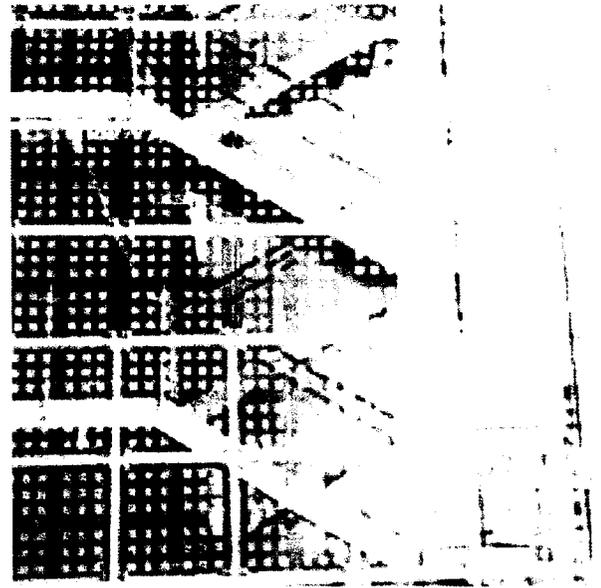
HP services for automotive enterprise integration help companies leverage and enhance their current infrastructure investments. These services have a positive impact on profit by improving business performance, operational excellence, and ROI while reducing costs. They include the HP Agility Assessment, infrastructure technology and services such as Collaborative Business Infrastructure (CBI.Net) for Automotive, and partner solutions by HP and SAP, Microsoft, BEA, and PRTM. HP automotive enterprise integration services help companies support innovation and enable innovative processes while minimizing risk that is associated with change. These services are excellent enablers for mergers, acquisitions, collaborations, and divestitures.

**Key benefit:** HP automotive enterprise integration services improve business and operational processes while reducing costs and improving ROI.

## Business process outsourcing

HP helps automotive OEMs and suppliers improve their focus on core competencies by outsourcing processes that are non-strategic and lower-value-added. These services can provide significant cost reduction from labor arbitrage; improved process efficiency, quality, and scale; enrichment of technology; and improved service levels, controls, and transparency.

**Key benefit:** HP business process outsourcing services reduce costs and improve overall process efficiency.



## The HP advantage in automotive

HP understands the extended supply chain environment and is uniquely qualified to apply this knowledge to the automotive industry. We ourselves are a very large global manufacturing company—in fact, we manage and run the ninth largest industrial supply chain in the world. HP takes its experience and best practices and shares them with customers. Adding proven, tested processes lowers risk and speeds time to value or increases return on business and IT investment.

HP has strategic alliances and partnerships with leading software and consulting companies, including SAP, PTC, UGS, MatrixOne, Oracle, Siebel, PRTM, Accenture, BearingPoint, Capgemini Group, and Deloitte Consulting. In addition, HP technology, products, and services range from the provision of shop floor PCs, handhelds, and workstations to integrated global enterprise platforms.

HP serves most of the major automotive OEMs and suppliers and has been working with many of them for more than 30 years. We understand the challenges of the automotive industry and have the alliances, partnerships, global resources, and experience that can help you gain operational excellence and innovation in your industry.

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### Car manuals printed on demand

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HP works with partners and its own Indigo Press to create innovative marketing solutions for the automotive industry. For example, HP and Indigo Press have worked with automotive OEMs to develop a process to create car manuals that are designed specifically for the vehicle that the customer is buying. This enables the OEM to print manuals more cost-effectively, and impressively delivers a car manual that is personalized to the customer's specific choice of options. HP has also worked with automakers to create custom marketing pieces targeted to specific customer desires in the form of brochures and other marketing-related collateral. These solutions, based on industry-leading HP printing technology, meet the high quality standards required by car manufacturers.

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## HP helps automakers see results

HP Services has demonstrated proven success with many of the world's leading automotive companies. Read what a few of their executives have to say:

"We selected the HP, Intel<sup>®</sup>, and MSC.Software team because we feel they have the configuration expertise and technical solutions to help us architect and install quality computing clusters."

John Picklo, High Performance Computing Manager,  
Chrysler Group

"From the beginning, HP Services was a critical partner, providing the technology and solutions that were instrumental to our vision. The result? Today we bring new vehicles to consumers in less than 24 months, versus 42 in the past."

Ralph Szygenda, Group VP and CIO, General Motors

"In order for Goodyear's assets to be managed more effectively, we needed a holistic view of the entire infrastructure from a single point. HP's comprehensive OpenView management technology is providing us with a solution to manage our infrastructure from a single console, rather than the eight we were juggling before."

Steve Buckus, Worldwide Director of Research, Goodyear

"HP Consulting had the right managerial skills, the right technology for Toyota's business, and a respect for Toyota's culture. Its professionalism exceeded our expectations. Not only did HP consolidate and stabilize our existing infrastructure, but it also accelerated the process of building a more complete IS organization, with all the right procedures in place to support a growing, fast-changing business."

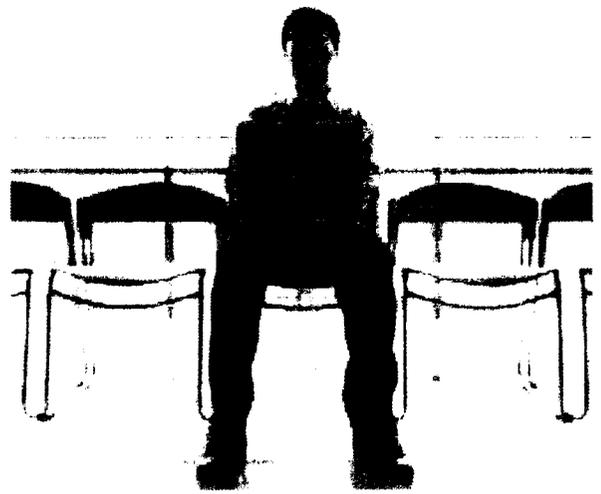
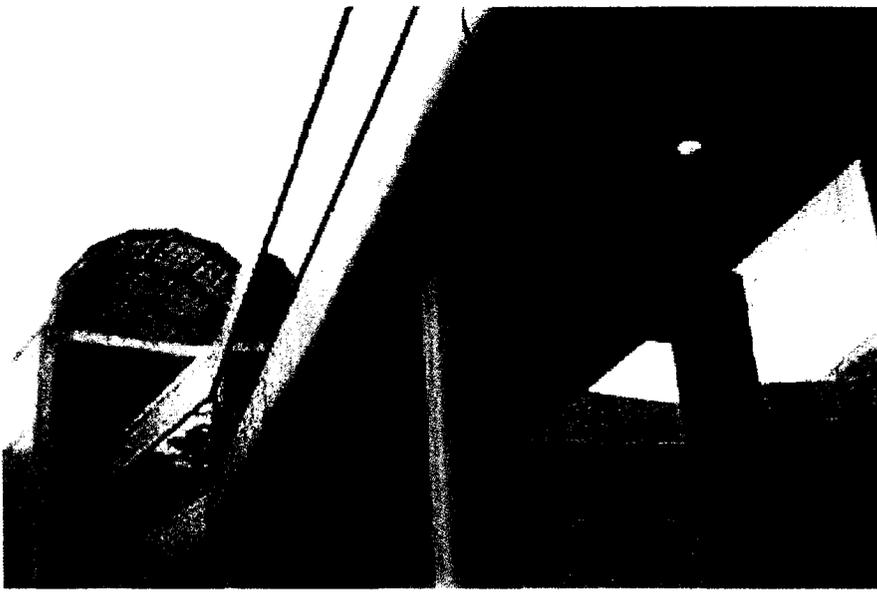
Arlen Biesiada, General Manager of Information Systems,  
Toyota Motor Europe Marketing and Engineering

"HP's broad set of technology resources, worldwide services, and partnerships helps ensure that we can deploy Delphi's extensive vehicle systems know-how where our customers need it, when they need it."

Peter Janak, Vice President and CIO, Delphi

"We have made full use of HP's knowledge of mobile technologies, from wireless infrastructure management and implementation to wireless applications and mobile access devices."

Neil Davis, IT Development Manager, WilliamsF1



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#### Key partnership with SAP

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As HP's key partner in the automotive industry, SAP is the world's largest provider of enterprise software and the third-largest independent software supplier. More than 12 million users rely on collaborative business solutions from SAP. Together, HP and SAP have probably already faced—and solved—many of the challenges automotive companies encounter today.

The strengths of the HP and SAP partnership include these:

- More than 33,000 SAP installations run on HP systems.
- 50% of all SAP customers run on an HP platform.
- HP has more than 1,000 SAP consultants with more than 5,000 person-years of experience.
- HP is widely acknowledged as a leader in SAP management services.
- HP maintains one of the world's largest engineering staffs dedicated to SAP, working closely with SAP developers and SAP Research.

"Clients give high marks to HP's strength in SAP technical and platform expertise, as well as its rigor in project management."

*Gartner Magic Quadrant Research Note, March 19, 2004*

## Find out more

For every business, innovating as a means of achieving or maintaining competitive advantage is not an option—it is a means of survival. In today's globally competitive economic climate, all organizations must review their internal and external processes in an effort to rid themselves of inefficiencies and increase their flexibility and responsiveness to change.

HP understands the challenges facing the automotive industry, knows where the opportunities are to create greater efficiencies and adaptability, and can extend that knowledge to your company. Every day we help forward-looking automotive companies seize innovative practices and technology to achieve business benefits and competitive results.

To find out more about how HP can help you in your business, visit us at: [www.hp.com/go/manufacturing](http://www.hp.com/go/manufacturing)

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To learn more, visit [www.hp.com](http://www.hp.com)

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