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**From:** Bill Gates  
**Sent:** Saturday, November 17, 2001 12:36 PM  
**To:** Will Poole; Chris Jones (WINDOWS)  
**Cc:** Bob McKenzie; Anoop Gupta (RESEARCH)  
**Subject:** FW: FORD R&D meeting

We should make sure your groups doing Music stuff (generalized links/programs) stays in touch with the AutoPC people.

-----Original Message-----

**From:** Bob McKenzie  
**Sent:** Saturday, November 17, 2001 7:45 AM  
**To:** Anoop Gupta (RESEARCH); Bill Gates; Dick Brass  
**Cc:** Craig Mundie; Rick Rashid; Linda Mitchell; Ben Waldman; Bruce Johnson (WINCE)  
**Subject:** RE: FORD R&D meeting

Yes, you have nailed the concept that we internally call Ultimate or Personalized Radio. It would be simple to add a button for folks to save programs just like a TiVo box to time shift content. It will be more difficult to create and then program an "electronic tv guide" for the radio. We have been talking about some new "extended radio concepts" with the folks at Clearchannel (the #1 radio station conglomerate) and this has great promise.

Extending your concept one step further we have been working on a prototype we call "Crystal Services" where, from your desktop, you can "schedule" any audible content you want (NPR programs, books on tape, talk shows, digital music, corporate content, etc) and have these either automatically saved to digital storage media (like a CF card) or downloaded to your car thru 802.11 while it is "docked in your garage". We believe that this could potentially be a "killer app" for the car and what better place to personalize your audible content than on the ubiquitous PC?!

We have started some evangelization of this concept to the MSN and DMD groups and we actually have a VB prototype and a simple PocketPC application that would allow you to test this concept in your car. Also, we have some prototype sw that would allow you to program your content from the web. Bruce Johnson has recently put together a presentation outlining this vision/concept.

Anoop, can we schedule some time with you to go over this? Would you be interested in trying this out in your car? We would love to get your feedback and ideas on this.

Ps. Another idea we have is creating a "virtual CD changer" in your "radio". When a person plays a CD we would automatically rip it to WMA and save it to local digital media. A 256MB CF card would nicely store 6 CDs of music which a person could have random access to. Much, much cheaper then buying/installing a mechanical CD changer which, on average, runs you nearly \$500 bucks. Plus since about 40% of the music people listen to is in their car, this would allow us to proliferate our WMA format which is still running significantly behind mp3...  
-bobm

-----Original Message-----

**From:** Anoop Gupta (RESEARCH)  
**Sent:** Saturday, November 17, 2001 6:48 AM  
**To:** Bill Gates; Dick Brass; Bob McKenzie  
**Cc:** Craig Mundie; Rick Rashid; Linda Mitchell; Ben Waldman; Anoop Gupta (RESEARCH)  
**Subject:** RE: FORD R&D meeting

A little thought.

One of the capabilities I would love to have is a PVR-like recording capability in my car. The main place I listen to the radio is in my car. That is where I will like to catch up with the latest NPR/BBC news, or

6/13/2003



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programs like CarTalk. Today, I just end up listening to whatever random program is being broadcast at the time I am driving. If the car could automatically record my favorite programs that would be very valuable to me. We can also provide nice audio-skimming technology for PVR, e.g. skip to the next news story if I am not interested in the current story or listen faster with time-compression.

Assuming compressed 32Kbps audio, storage requirements for 4 hours of recording time are less than 64 Mbytes. The car already has the radio, and enough compute power to do the compression. I would happily pay for such a feature.

– Anoop.

-----Original Message-----

**From:** Bill Gates  
**Sent:** Friday, November 16, 2001 1:00 PM  
**To:** Dick Brass; Bob McKenzie  
**Cc:** Craig Mundie; Rick Rashid; Linda Mitchell; Ben Waldman; Anoop Gupta (RESEARCH)  
**Subject:** FORD R&D meeting

We spent 2 hours with the top R&D people including Richard Perry Jones GVP, Global Product Development and CTO ([rparryj2@ford.com](mailto:rparryj2@ford.com)) 313 845 0544.

Marv Adams, CIO sat in the meeting but Richard was the key sponsor of it.

We mostly "showed out stuff" and discussed the auto context.

Craig drove the presentation and did a really good job on it. I was a little surprised that Craig had to do the vision of the auto stuff a bit from scratch.

I think they were impressed with the things we showed – AutoPC, tablet, a little Xbox, some PDA stuff.

They wanted our view of what their proper role was – they were more modest about their unique position than I expected them to be.

I didn't say anything about Zenith except that when we discussed wireless networks we described three of them. 1) A data broadcast network that Microsoft would make sure was in place 2) 802.11 in lots of places and 3) 3G with packet charges. We went through the distinct roles we think each of these three networks played. I mentioned the value of data broadcast for the car environment but I am not sure they understood what a big deal that is since it was embedded in so much other stuff. I know I was jumping the gun a bit mentioning that – I didn't say what the technology would be and they didn't ask any questions about it. I do think that in a 2-5 months when we have the data broadcast stuff pulled together we can present that as a huge asset to the car companies as a mechanism to gather data for the in-car display.

One interesting thing that came up during the discussion is whether portables/PDAs will be able to detect a larger screen that is nearby and take advantage of the extra screen size and new input techniques. Lets say I take my Pocket PC into the car – can I have it use the built in WTS stuff to at least show up on myincar screen? How much work would it be that when my PDA is near my PC that I get a WTS display to work with on the PC screen – what value added would make sense there? This could be a REALLY nice better together story. Ideally the applications would be so adaptable they could use even a larger screen and even use voice or touch. This implies applications that adapt to an input environment more flexibly than we do today. The whole area of separating execution from display so they can be redirected is an interesting area.

We also talked about knowing who is driving – should keys turn into generic smart cards so you know the individual? The vision of having someone's Communications/Alerts show up in the car as a possible target device requires knowing who the driver is. You can't just send all alerts to all family cars. Authentication issues include whether cars should use voice to distinguish between

6/13/2003

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the finite set of typical drivers or whether biometrics make sense there. Replacing keys with smart cards requires an easy approach to giving someone permission to use your car. The overall issue of digital physical locks and how authentication can fit into that is interesting at least in corporate access.

Ford seemed to want us to talk more about using our OS assets for basic car control stuff but we didn't address that. One of the members of the FORD team introduced himself as their leader on AMIC and seemed to like AMIC. We didn't get to address the myths of JAVA in this space. We didn't learn about how Wingcast fits in to all this stuff. We didn't present the success we have had with AutoPC in much depth.

Ford wanted business model input. We said put a nice screen in with our software architecture behind it and get a one time payment and then connect it to the broadcast and share part of an ongoing payment which may also include some bulk minutes usage for 3G in the case where two-way things need to be done.

The followup needs to be a number of meetings between the AutoPC people and the FORD people. We really need to understand their thinking about OSes in the car and services around them. This won't be simple since there are lots of different groups and they don't have crisp views in most cases. I asked Linda to help the AutoPC people get these meetings even though the product group will have to take leadership on this. If we are not getting access I can jump back in but I would be surprised if that is a problem. After spending 6 weeks of so really probing these guys the AutoPC group should propose a strategy based on the size of the opportunity. Getting back together with Ford at a very high level should be part of this if we decide there is a good opportunity. Ideally Craig/Dick can provide any high level executive needs this followup requires. However if I can help I am glad to. The ball is firmly in the hands of the AutoPC group to use this open door to make friends at Ford and really understand what is going on.

I spent 35 minutes with Bill Ford the new CEO after the car software meeting. He is very anxious to see Ford and Microsoft work together. He knows Ballmer as a Detroit kid and has a high opinion of him. I also explained to Bill how Marv was doing good work and needed his support in recentralizing a number of IT things that have become fragmented and expensive and disconnected. He encouraged me to be in touch when I see opportunities for Ford and MSFT to work together. We should make sure he gets invited to the CEO summit although that didn't come up.

6/13/2003

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