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Demo Fact Sheet

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INTEL DEVELOPER FORUM DAY 0 DEMONSTATION HIGHLIGHTS

Aug. 18, 2008— On the eve of the Intel Developer Forum, scheduled for Aug. 19-21, Intel Corporation is briefing media on the company's research to bridge the digital world with the real world. Below are summaries of each research project on display in the technology showcase.

Connected Visual Computing

"Smart Car" Using Computer Vision Recognizes and Tracks Objects for Driver Assistance and Safety
Ct is an Intel research effort focused on extending C/C++ to help mainstream programmers efficiently create highly parallelized and scalable software that takes full advantage of Intel's current multi-core and future tera-scale processors. Neusoft and Intel created this Ct proof-of-concept demo for a "smart car" that uses computer vision to track objects for driver assistance.

Connect and Share

Mobile Devices that Find and Use Nearby Technologies
Dynamic composable computing overcomes the limitations of small mobile computers by allowing users to create an enhanced mobile computing experience. The technique wirelessly integrates more capable resources such as displays and storage as well as the networking, sensing and processing available on nearby computers. This demo shows the value and richness of composition by allowing a PC game to use two nearby ultra-mobile PCs as game controllers by sharing their on-board motion sensors.

Wireless Service Discovery Enhances Mobile Devices
Mobile devices can be empowered to seamlessly and wirelessly exchange media and use resources from other nearby devices. An 802.11 infrastructure and peer-to-peer networks illustrate the benefits of efficient device discovery and layer-2 service discovery. This not only significantly reduces discovery latency, but also improves energy efficiency.

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Flexible Compression for Wireless Displays
This demo shows a remote wireless display solution for mobile devices, optimized for both video and productivity applications, based on an H.264 codec. The display solution can adapt power consumption and bit rate that is subject to bandwidth, delay and quality constraints.

Wireless Remote Graphics Rendering
Wirelessly displaying output from graphics intensive games on remote displays is a challenge because the size of graphics content can easily overwhelm available radio bandwidth. Remote graphics rendering solves this issue by intercepting high-level 3-D graphics primitives at the graphics API level and sending them to the remote side for rendering.

Intelligent Layer Selection for Remote Displays
Minimizing communication and computational overhead are important considerations for mobile devices with limited battery life. This demo considers the type of application, such as streaming video or playing games, as well as the available resources, such as a remote display with or without support for OpenGL, to determine how to deliver content to a remote display wirelessly.

Sensing and Context Awareness

Context – Automating Daily Decisions
This demo shows how context-aware computing can be used to help a business user balance the demands of work and home life. A mobile device is enabled with a general-purpose context-aware computing framework that monitors the user's activity. The calendar, traffic information and the user's location are tracked and can ensure the person sets aside enough time to pick up a child from day-care at the end of the day. The demo also shows how contextual information can be shared with other users. While this demo focuses on a specific situation, it illustrates that the context-aware computing framework can be applied to a number of other situations and across numerous industries.

On-the-Go User Interface
In the demonstration, a sensor-enabled wristwatch detects hand movement and wirelessly transmits the gesture information to a mobile Internet device that reacts accordingly, such as changing the volume of a video. Subtle gestures with audio feedback enable a highly intuitive mobile interaction at the person's fingertips. The benefits are:

- Highly intuitive, always accessible
- Low cognitive load, less immersive
- Leverage context to distill user intent

Remote Patient Context Delivery – Technologies for Telemedicine
Imagine a future where a person could allow his or her health condition and history to be available to a distant medical expert as if the doctor were right at the patient's side. Today typical telehealth interactions are verbal exchanges between the local caregiver and the remote expert, sporadically supported by data. This project shows a research prototype that brings all vital health data together, including the situational information -- such as medications administered and information on other treatments -- and voice and photo annotations and delivers the data to the remote doctor working with the on-the-scene technician. Learning from

this work helps researchers understand technologies needed for future health care solutions in rural communities, emergency services and disaster assistance.

Mobile Wellness Management
Imagine being able to effortlessly keep tabs on daily behaviors and how the human body responds to manage activity and food consumption. This insight might help improve personal management of weight gain and minimize associated chronic disease risk in the future. This demonstration shows a comprehensive research prototype that will be put through a field pilot to learn and validate the technology and usability requirements for achieving such a result.

User Identification from Unique Walking "Signature"
Unique user identification can be determined from a person's unique walking signature. This could enable a household, for example, to automatically adjust room temperature and music to one person's given preferences.

DermFind
The demo shows an interactive decision support system for melanoma detection by which clinicians can capture an image of a skin lesion and use that to query a large medical image database for similar cases. Diagnostic and treatment information associated with the similar cases can help physicians make more informed decisions.

Stem Cell Tracking
Clinical translation of stem cell research promises to revolutionize medicine. Challenges remain in the understanding of cell biology as well as stem cell manufacturing. Engineering toolsets to study cell behavior and the associated stemness are needed. Intel researchers present a fully-automated computer vision system that simultaneously tracks and analyzes thousands of cells observed using time-lapse phase contrast microscopy.

Navigating Future Moneyscapes
The digital revolution is changing money, moving it from paper and coins to mobile devices, smart cards and virtual worlds. From ethnographic studies of existing sites of monetary innovation, Intel social scientists and designers have been exploring future implications of the emerging landscape of digital payment, transfer and banking methods on everyday life. A short animated video sketches some possible future scenarios.

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