Surface computers
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What is Microsoft surface

• It is a computer with different look and feel.
• Surface do not have any keyboard or mouse.
• This uses a multi touch screen as user interface.
• Change an ordinary table top into a vibrant, interactive surface.
• 30-inch surface.
• Able to recognize actual unique objects that have barcode.
What is Microsoft surface (Cont..)

• Microsoft debuted May 3, 2007.
• Now it is only available in restaurants, hotels, retail and public entertainment venues.
• Will transfer the people shop, dine, entertain and live.
What is surface computing?

A new way of working with computers that move beyond the traditional mouse-and-keyboard. It is a natural user interface.
In 2001, Stevie Bathiche of Microsoft Hardware and Andy Wilson of Microsoft Research began brainstorming concepts for an interactive table. Their vision was to mix the physical and virtual worlds to provide a rich, interactive experience.
Humble Beginnings on an IKEA Table

In early 2003, the team presented the idea to Bill Gates, Microsoft Chairman, and within the month the first prototype was born, based on an IKEA table.
Humble Beginnings on an IKEA Table

In 2004, the team grew and became the surface computing group. Surface prototypes, functionality and applications were continuously refined. The team built more than 85 early prototypes for use by software developers, hardware developers and user researchers.
Hardware Design

By late 2004, the Microsoft development platform was established and attention turned is form. A number of different experimental prototypes were built, including the “tub” model that was encased in a rounded plastic shell, a desk height model with a square top and cloth-covered sides and even a bar-height model. After extensive testing and eyes research, the current look and feel of surface was finalized in 2005.
From prototype to product

Today, Microsoft is a 30-inch diagonal display table that is early for individual or small groups to use collaboratively. With a sleek, translucent surface, people engaged with surface using natural hand gestures, touch and physical objects placed on the surface.
Hardware Specification

Screen: A large horizontal “Multi touch” screen, the surface can recognize objects by reading coded “domino” tags infrared.

Infrared: surface uses a 850-nm light source.

CPU: Core2Duo processors
    2GB of RAM
    256MB graphics card.

Projector: The surface uses DLP light engine found in many rear projection HDTV’S.
Specification

Features: Multi-touch display, Horizontal orientation.
Requirements: Standard American 110-120v power.
System: The surface custom software platform runs on Windows Vista and has wired Ethernet 10/100 and wireless 802.11b/g and Bluetooth 2.0 connectivity. Surface applications are written using either windows presentation Foundation or Microsoft XNA technology.
Dimensions: 30-inch (76 cm) display in a table-like form factor, 22 inches (56 cm) high, 21 inches (53 cm) deep, and 42 inches (107 cm) wide.
Materials: The surface tabletop is acrylic, and its interior frame is powder-coated steel.
Specification (Cont…)

• At Microsoft MSDN conference, Bill Gates told developers of “Maximum” set up the Microsoft surface was going to have:
  • Intel core Quad Xeon “Wood Crest” @2.66GH2
  • 4GB DDR2-1066 RAM
  • 1TB 7200RPM Hard Drive
  • It has a custom motherboard form factor about the size of two ATX motherboards.
How surface works

• At a high level, surface uses five cameras to sense objects. This user input is then processed and the result is displayed on the surface using rear projection.

• Microsoft surface can also identify physical objects that have bar-code-like tags (Domino tag).
Four key Attributes

- Direct Interaction
- Multi Touch Contact
- Multi User Experience
- Object Recognition
Direct Interaction

• Direct interaction means that, we can interact with the surface by using our fingers.
• No other input device is needed to give input.
• This provides a natural interface effect.
Multi-user Experience

• A single touch screen can support more than one user.
• Each user can interact independently with the surface.
Multi-touch contact

- Ordinary touch screens provide only single touch sensing.
- In surface more then one touch can be recognized at the same time.
Object recognition

- Object recognition is done in the surface by using special bar codes called Domino tags.
- These are infrared sensitive patterns which are read by the infrared sensing cameras inside the surface.
Applications...

- Digital photo handling with finger tips.
- Instantly compares while shopping.
- Interaction with digital content by share, drag and drop digital images.
- Surface restaurant.
- Quickly browse through play list entries dragging favorite song to the current track…
- Easy to take complex shopping decisions.
Digital photo handling with finger tips.

We can handle images directly with our finger. Manipulating the images is even more better than the real photos.
Instantly compares while shopping.

We can directly compare different products just by placing them on the surface. This is done using object recognition technology.
Interaction with digital content by share, drag and drop digital images.

Digital images are manipulated, shared and send via technologies like Wi-Fi, Bluetooth, etc.
Surface Restaurant.

orders can be placed on the surface from a sliding menu.
Quickly browse through play list entries dragging favorite song to the current track...

Huge play lists can be easily manipulated.
Disadvantages…

• Incredibly expensive.
• Currently only for restaurants, hotels etc.
• Need for dim lighting to avoid washing out the screen.
• Need to put bar codes on objects on for the system to recognize them…
‘A computer on every desktop’
Now we say,
‘Every desktop will be a computer’. 
Thank You!