

# ESTABLISHED TECHNOLOGY : TOUCHSCREEN

Eurim Kim  
eullkim@gmail.com



EURIM KIM

# TOUCHSCREEN

INPUT



+ OUTPUT



= TOUCHSCREEN DEVICE

Command  
by touching  
&  
Display  
the information



With touchscreen, they can make devices smaller.

A touchscreen is an electronic visual display that can detect the presence and location of a touch within the display area.

The term generally refers to touching the display of the device with a finger or hand. Touchscreens can also sense other passive objects, such as a stylus.

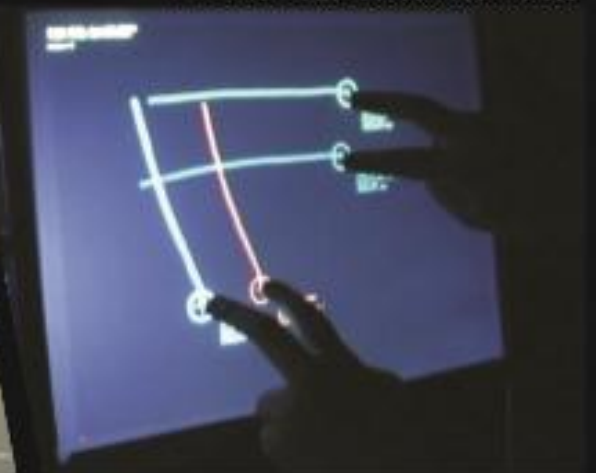
The touchscreen has two main attributes. First, it enables one to interact directly with what is displayed, rather than indirectly with a cursor controlled by a mouse or touchpad. Secondly, it lets one do so without requiring any intermediate device that would need to be held in the hand. Such displays can be attached to computers, or to networks as terminals. They also play a prominent role in the design of digital appliances such as the personal digital assistant (PDA), satellite navigation devices, mobile phones, and video games

# HISTORY

- 1954 - Hugh Caine : prototype of the Touch Sensitive Organ
- 1971- Dr. Hurst : the first touch sensor "Elograph"
- 1972 - used on PLATO by the University of Illinois
- 1974 - Dr. Hurst : the first transparent touchscreen
- 1977 - Elographics : the 5-wire resistive method
- 1979 - 3M : patented surface capacitive technology
- 1981 - Tactile Array Sensor for Robotics
- 1982 - Elo Touch : the first multi touch input system
- 1984 - Bob Bole at Bell Labs : the first multi touch screen
- 1985 - Zenith patented the Surface Acoustic Touch Panel System  
University of Toronto developed multi-touch tablet
- 1987 - Elo Touch : SAW technology from Zenith
- 1990 - Nissha : FineTouch touch panel
- 1993 - Apple's Original Newton Message Pad H1000
- 1995 - MicroTouch launched
- 1996 - Palm introduced Palm Pilot 1000  
first commercially successful PDA
- 2000 - 3M acquired MicroTouch
- 2001 - Zytronic : the first Tablet PC prototype  
Microsoft : the first public prototype of Tablet PC  
MERL :Diamond Touch multitouch system
- 2002 - Sony :published a paper about  
Smart skin multitouch system.
- 2003 - NextWindow & Smart Technologies : optical touch panel  
FingerWorks : input peripherals
- 2004 - Nintendo : Nintendo DS,  
TMD : Touch-embedded TFT using optical sensors  
Jeff Han : the first FTIR multi touch  
Apple : iPhone  
AUO : In-cell touch panel technology  
Microsoft : Microsoft Surface
- 2008 - HP : multi touch Tablet PCs
- 2009 - Dell : multi-touch all-in-one PCs
- 2010 - Apple : iPad  
Amazon : Touchco



▲ Early Touchscreen technology

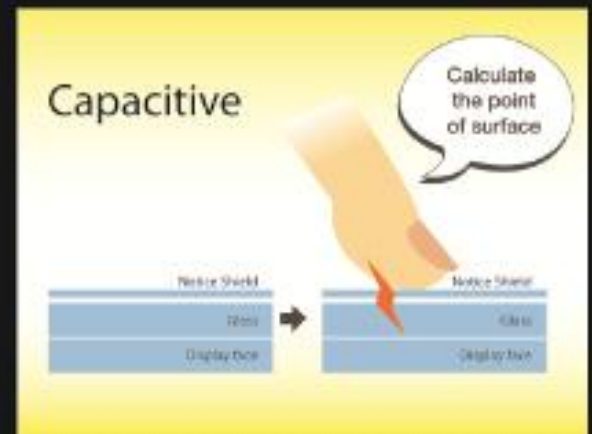
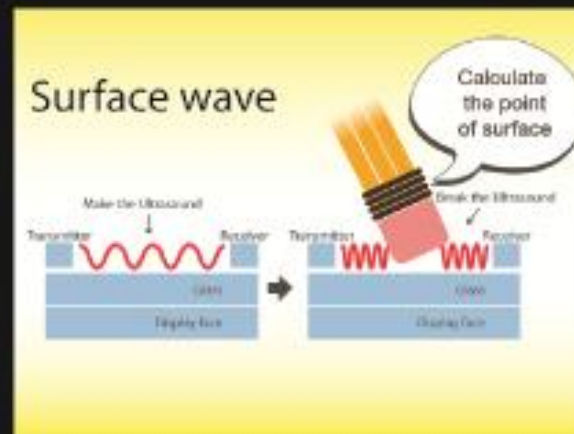
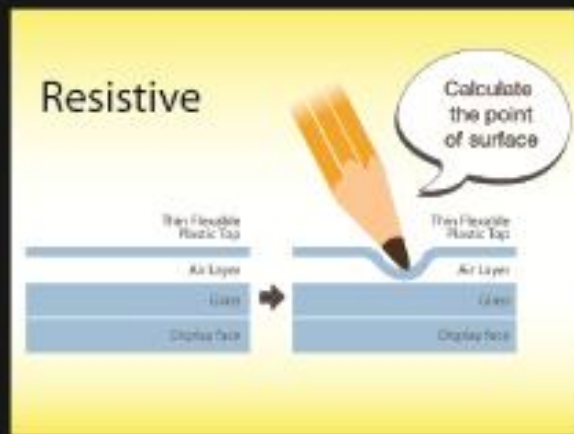
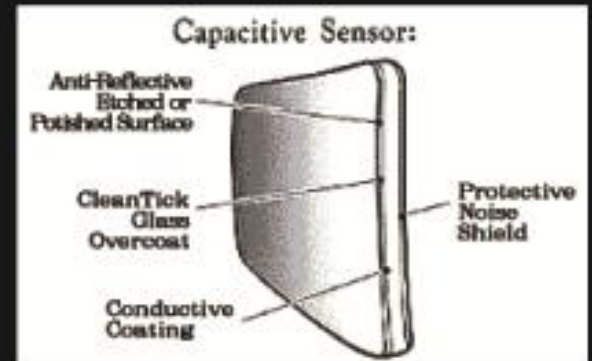
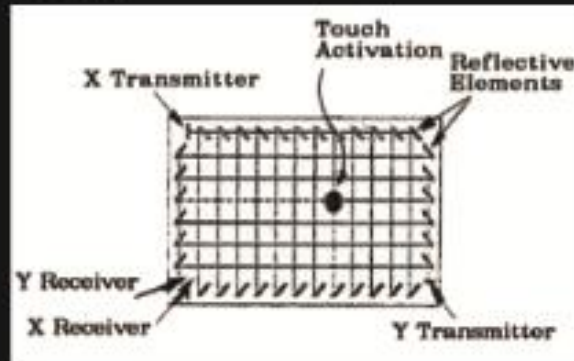
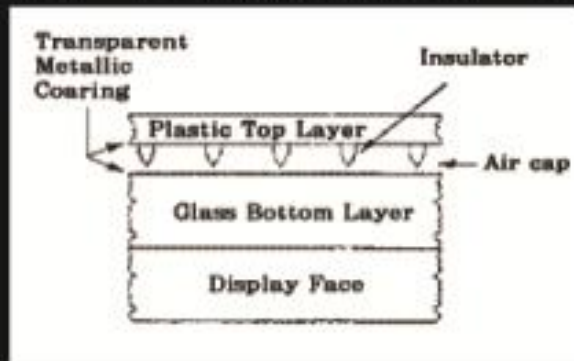


▲ Multitouchscreen Interaction

I believe that huge time gap of invention and commercialization is based on cost problem, weight problem and also electrical efficiency.

According to the other technologies grew up, these problem resolved naturally.

# TECHNOLOGY



## Resistive

Resistive-type screens lack the clarity of other touch screens but they tend to be very durable and can be used in a variety of environments.

## Capacitive

Capacitive screens are resistant to outside elements, making them very durable, and they still maintain a high clarity. Unlike resistive and surface wave screens, which can be used with stylus, capacitive panels must be touched with a finger. Capacitive-type screens are the most common in use today.

## Surface Wave

Surface wave touch panels are the more advanced of the three types, offering the highest clarity. But they are more easily damaged by outside elements.

# EIDETIC INTERFACE

## Eidetic Interface



Here's an interesting story of my mom. when she tried to learn how to use computer, she touched on my pc monitor which is not a touchscreen.

This shows us what exactly cognition psychology is. People operate things very intuitive way. That is why we should build the interface eidetically. Eidetic interface reduces human mistake or misunderstanding.

a button matches a function : easy to understand

but we need more function

too many button : loses matching effect

human only can matches below 7-9 buttons in one's brain.

a button matches various function : confuse people

Touchscreen : shows the function what user needs. hide the others

## Eidetic Interface



It's easy to control! but is that it?



People are easily aware of the function when it matches with one button.

## Eidetic Interface



Are you kidding me?



If a button includes too much information, People get confused.

## Eidetic Interface



Cognitive Psychology: people can use intuitively the number of buttons 7 to 9. If it gain more than that, it will lose the matching effect.

## Eidetic Interface



Touchscreen shows what user need. hides useless function. Awawawaw!



I can show u what u want.

# TOUCHABLE 3D HOLOGRAM

Touchscreen is in the spotlight as an alternative for the small devices which need eidetic interface.

However, it cannot express 3d space or texture because of the current technology restraints and current products being produced in flatscreen format. 3d-panel and tactile touchscreen is on developing now. it can be a solution in one way.

but one day, There will be the Touchable 3D hologram Mobile which offers 3d object and the texture of them. it will provide the interface that much more eidetic way because it will express things in a more realistic way. Here's what I suggest. ▶



## CURRENT HOLOGRAPHY TECHNOLOGY

