

DOCUMENTATION ON TOUCHSCREEN

What is Touch Screen Technology?

Touchscreen technology is the direct manipulation type gesture based technology. Direct manipulation is the ability to manipulate digital world inside a screen without the use of command-line-commands. A device which works on touchscreen technology is coined as Touchscreen. A touchscreen is an electronic visual display capable of 'detecting' and effectively 'locating' a touch over its display area. It is sensitive to the touch of a human finger, hand, pointed finger nail and passive objects like stylus. Users can simply move things on the screen scroll them, make them bigger and many more.

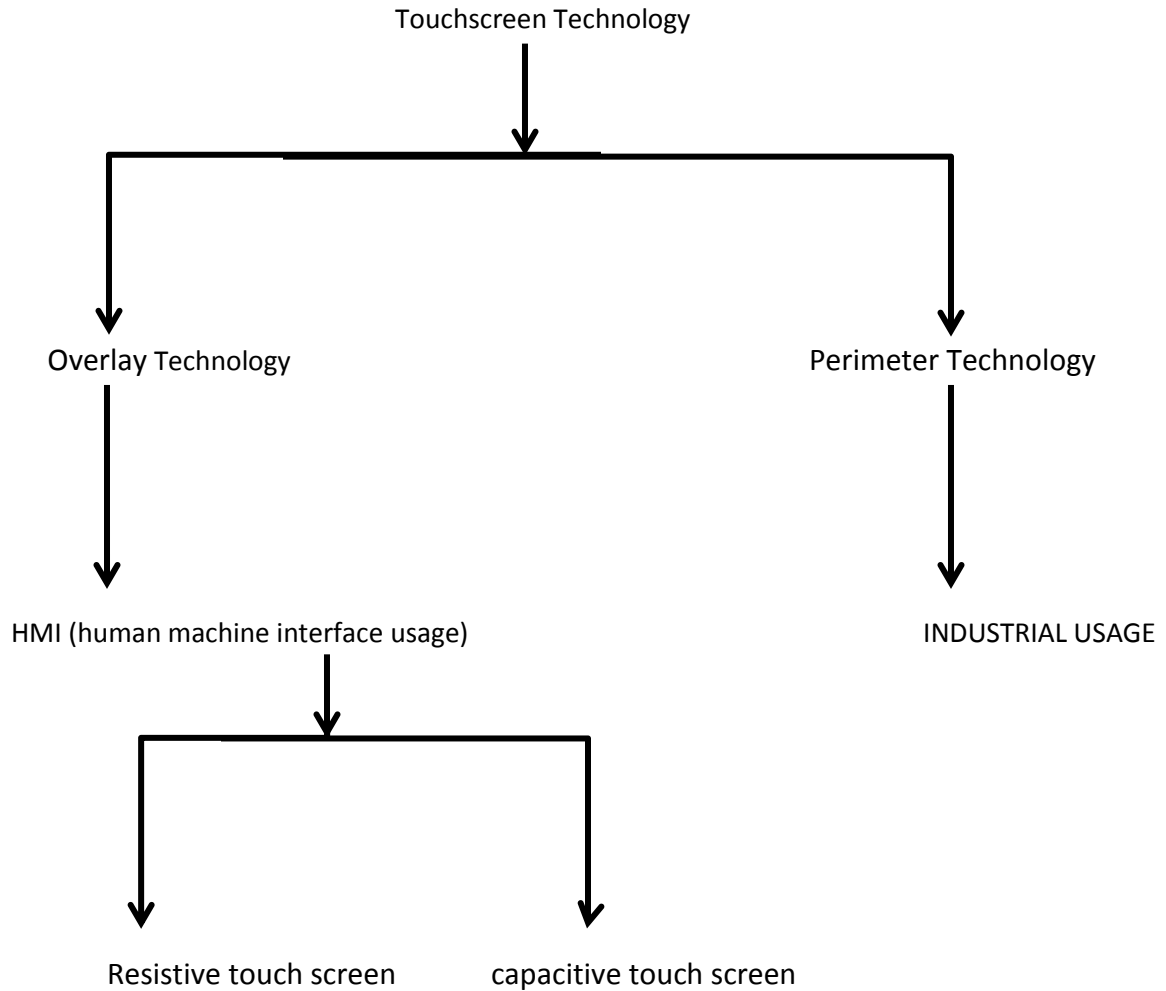
History:

The first ever touchscreen was developed by E.A Johnson at the Royal Radar Establishment, Malvern, UK in the late 1960s. Evidently, the first touchscreen was a capacitive type; the one widely used in smart phones nowadays. In 1971, a milestone to touchscreen technology was developed by Doctor Sam Hurst, an instructor at the University of Kentucky Research Foundation. It was a touch sensor named 'Elograph'. Later in 1974, Hurst in association with his company Elographics came up with the first real touchscreen featuring a transparent surface. In 1977, Elographics developed and patented a resistive touchscreen technology, one of the most popular touchscreen technologies in use today. Ever since then, touchscreen displays are widely used in computers, user interactive machines, public kiosks, point of sale applications, gaming consoles, PDAs, smartphones, tablets, etc.

Types of Touchscreen Technology:

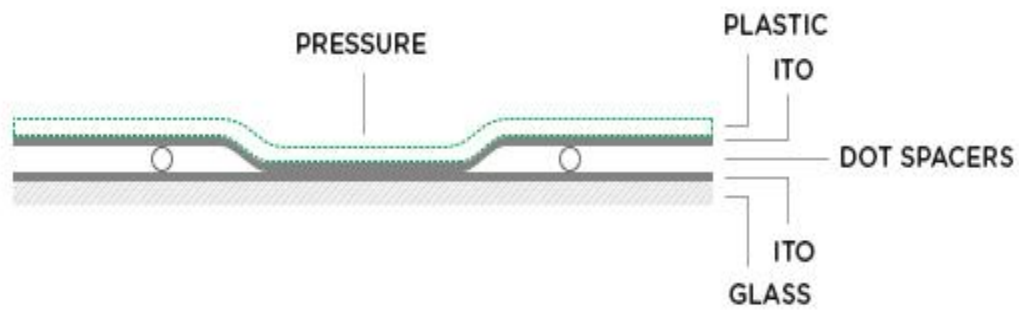
There are two types of touch screen technologies:

1. Overlay
2. Perimeter



RESISTIVE TOUCH SCREEN:

Resistive touch screen can be divided into 4, 5, 6, 7 or 8-wired models, which differentiate between the coordinates of touch. As one of the most commonly used, resistive touch screen relies on a touch overlay, constructed by a flexible top layer and rigid bottom layer, divided by insulating spacer dots. The inside surface is coated with a transparent material (Indium Tin Oxide) that makes electrical contact when pressure is applied. These voltages are then converted to X and Y coordinates, which are sent to the controller. Whilst resistive screens are durable and easy to integrate, they can only offer 75% clarity.



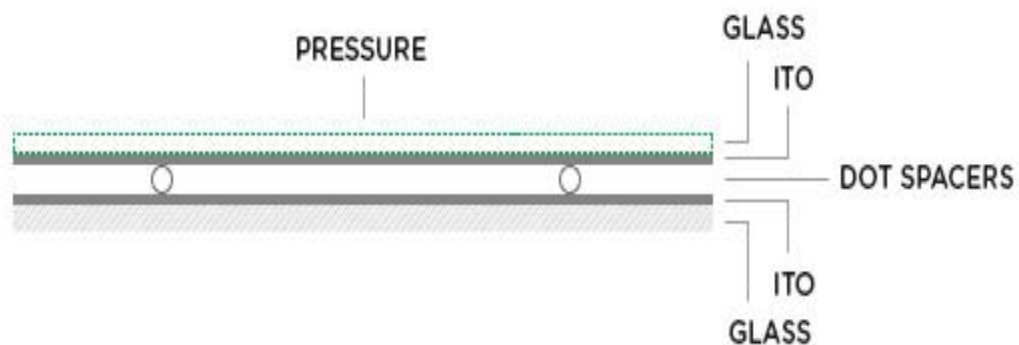
DRAWBACKS OF RESISTIVE TOUCH SCREEN:

- i) Due to the presence of gap between top layer and bottom layer, **brightness is low**.
- ii) It doesn't support **multi-gesture** concept.
- iii) Life time is lesser than capacitive.
- iv Resistive touch screen response based up on pressure applied on it so it will may leads to error.

ADVANTAGES:

- i) It is cheaper and very sensitive.

CAPACITIVE TOUCH SCREEN:



Commonly utilized for industrial purposes, capacitive touch screens consist of a glass overlay, coated with a conductive material such as Indium Tin Oxide. Contact with a capacitive screen creates an electrostatic charge that sends information to the touch control in order to perform its function. This type of touch screen has very good clarity and durability, except they can only respond to the touch of a finger or special gloves unless it is capacitive charged.

ADVANTAGES OF CAPACITIVE TOUCH SCREEN:

- i) It supports multi-gesture concept.
- ii) Life time is high.
- iii) Clarity is good.
- iv) Highly responsive and sensitive.

LIMITATIONS:

- i) It is more expensive.
- ii) Might not conduct with non-conductor.