



Touch Less Touch Screen Technology

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ABSTRACT:

Touchscreen is technology that uses gesturing as form of input. It has no need of touching screen. This technology is high-end technology, that uses hand waves and hand flicks. It was the touch screens which initially created great future [2]. Touch screen displays are used worldwide. Frequent touching a touchscreen display with a pointing device such as a finger can result in the gradual de-sensitization of the touchscreen to input and can ultimately lead to failure of the touchscreen. [1]

Objective:

The aim of this technology is making it even more comfortable and convenient for users to use their devices. It does not need touching of screen rather system detects hand movements in front of it by making use of various sensors. This technology looks visually fascinating and is depicted in various Sci-fi movies such as Minority Report and Matrix Revolutions [2].

Introduction:

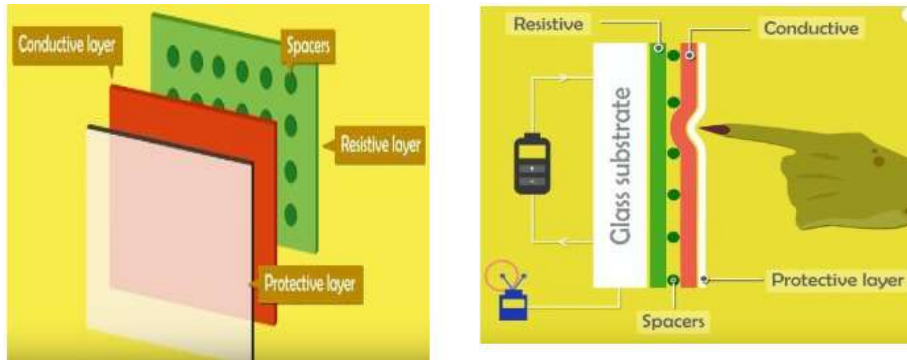
It connects computers and users without the need for any form of contact. With user gestures, the computer relays them to valid commands. It is generally used in ATMs as the resistive touch screen system. The device is based on optical pattern recognition using a solid state optical matrix sensor with a lens to detect hand motions. This sensor is then connected to a digital image processor, which interprets the patterns of motion and outputs the results as signals to control fixtures, appliances, machinery. With the touch less touch screen your hand doesn't have to come in contact with the screen at all, it works by detecting your hand movements in front of it. This is a pretty unique and interesting invention, until you break out in a sweat.[3]

What is the technology behind it?

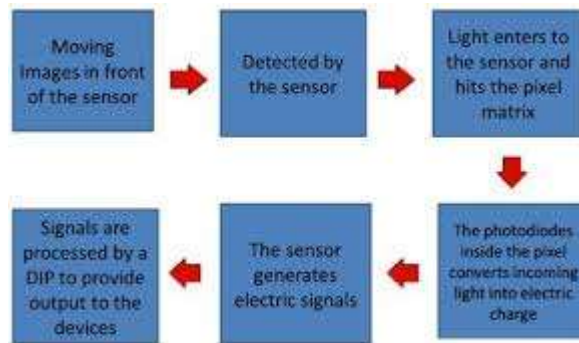
It obviously requires a sensor but the sensor is neither hand mounted nor present on the screen. The sensor can be placed either on the table or near the screen. And the hardware setup is so compact that it can be fitted into a tiny device like a MP3 player or a mobile phone. It recognizes the position of an object from as 5 feet. [3]



Touch Screens have made various devices so simpler to use. A simple tap, little swipe and the required task is done. One of the most basic systems mostly used in ATM's is the resistive touch screen system. It consists of two electrically conductive layers, one of which is resistive and the other one is a conductive layer. These two layers are separated by spacers, which keeps them apart until you touch it. A scratch resistant on top completes the whole setup. An electrical current runs through the two layers at all times. When you touch the screen the two layers are pressed together, and the electrical current changes at the point of contact. The change in electrical field and its co-ordinates are calculated by the software, which further carries out function corresponding to that spot.[4]



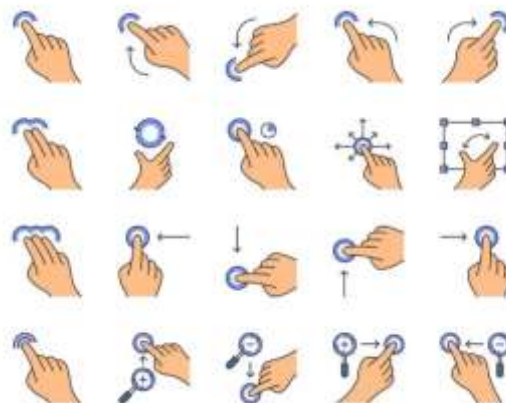
Workflow of Touch less Touch screen



The system is capable of detecting movements in 3-dimensions without ever having to put your fingers on the screen. Sensors are mounted around the screen, by interacting in the line-of-sight of these sensors the motion is detected and interpreted into onscreen movements. The device is based on optical pattern recognition using a solid state optical matrix sensor with a lens to detect hand motions. This sensor is then connected to a digital image processor, which interprets the patters of motion and outputs the results as signals to control fixtures or any device controllable through electrical signals. [4].

Types of Touchscreen Technology

Gesture recognition: It is the most common form of no-touch technology. We can use simple gestures to control or interact with devices without physically touching them. Think waving your hand to turn the water on in a public restroom or drying your hands afterward in a touch less dryer.



Touch less sensing: It is used to detect the presence or motion of a person under a sensor. Like gesture recognition, touch less sensing has become rather commonplace in our every-day lives. Examples of this include smart lights that turn on when you walk into a room or automatic doors that you see at grocery stores, hotels, and commercial buildings.



Voice recognition: It let users interact with technology simply by speaking to it. This has become popular especially in our homes. We can make hands-free requests, set reminders, and perform other simple tasks by talking to Amazon's Alexa, or the Google Assistant.



Facial recognition: It takes things one step further since it doesn't require a conscious effort by the user. Technology that can recognize your team opens up a world of possibilities and automation in the workplace.



Personal devices: For technology to be completely touch-free it must operate without the need for physical contact, like in the examples above. However, the introduction of smartphones and other personal devices have made nearly touch-free technology possible as well. Anything that operates at the command of your own personal device allows you to avoid touching public surfaces. [7]

Advantages:

Touch less technology removes physical touch from interactions, often resulting in more-hygienic, more-efficient, and more-convenient self-service experiences. With a touchscreen accessibility is flawless, you can easily access menu options and you can change the button size to whatever size you want. Touchscreens are incredibly valuable for anyone who has limited physical capabilities, allowing them to carry out the same tasks as others with ease. Device makers can make and modify various input interfaces creatively by software. With multi-touch function, various operations/inputs (eg: zoom-in/zoom-out, rotation) are possible.

Conclusion:

Touch less technology is a fast-emerging technology with a lot of growth opportunities hence; modern workplaces should embrace it as early as possible and grow with it. As the most important elements to keeping your office healthy is the front door, and all doors, expect this technology to emerge rapidly to more thoroughly suit your workplace safety needs [6].

References:

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