TOUCH LESS TOUCH SCREENS

Ch. Naga Saranya

Assistant Professor, Department of Computer Science

RBVRR Women's College (AUTONOMOUS),

Narayanaguda, Hyderabad

***Abstract :*Computers have become more visual now a days and further they took up to next step understanding vocal commands and now they have moved to the next step the Touch Screens that is the touch of the skin to the screen. A touch screen is an easy Input device for the users to control software and videos by touching the display screen. A touch system consists of a sensor that receives the touch input. The most commonly used touch technologies are Capacitive and Resistive systems. The touch screens initially created great future. Frequent touching a touch screen display with a pointing device such as a finger can result in the gradual de-sensitization of the touch screen to input and can ultimately lead to failure of the touch screen. Gone are the days why you have to fiddle with the touch screens and scratching up. To avoid this simple user interface, electrically operated equipment is being developed that is control of touch less. Elliptic Labs innovative technology lets you control your gadgets like Computers, MP3 players or mobile phones without touching them. Unlike other systems which depend on distance to the sensor or sensor selection this system depends on hand and or finger motions, a hand wave in a certain direction, or a flick of the hand in one area, or holding the hand in one area or pointing with one finger. 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, or any device controllable through electrical signals.**

Keywords: **Touch Screens, Touch less Screens, Sensors**.

I Introduction: The touch less touch screen sounds like it would be nice and easy, however after closer examination it looks like it could be quite a workout. This unique screen is made by TouchKO, White Electronics Designs, and Group 3D. 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. Now this technology doesn't compare to other. Everybody loves a touch screen and when you get a gadget with touch screen the experience is really exhilarating. When the I-phone was introduced, everyone felt the same. But gradually, the exhilaration started fading. While using the phone with the finger tip or with the stylus the screen started getting lots of finger prints and scratches. When we use a screen protector; still dirty marks over such beautiful glossy screen is a strict no-no. Same thing happens with I-pod touch. Most of the time we have to wipe the screen to get a better unobtrusive view of the screen. Elliptic Labs innovative technology lets you control your gadgets like Computers, MP3 players or mobile phones without touching them. Simply point your finger in the air towards the device and move it accordingly to control the navigation in the device. We term this as "Touch less human/machine user interface for 3D navigation".

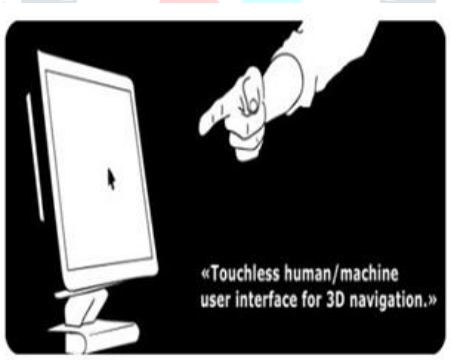
II TOUCH LESS MONITOR: Sure, everybody is doing touch screen interfaces these days, but a monitor that can respond to gestures without actually having to touch the screen. The monitor, based on technology from TouchKO was given by White Electronic Designs and Tactyl Services. Designed for applications where touch may be difficult, such as for doctors who might be wearing surgical gloves, the display features capacitive sensors that can read movements from up to 15cm away from the screen. Software can then translate gestures into screen commands. Touch screen interfaces are great, but all that touching, like foreplay, can be a little bit of a drag. Enter the wonder kids from Elliptic Labs, who are hard at work on implementing a touch less interface. The input method is, well, in thin air. The technology detects motion in 3D and requires no special worn-sensors for operation. By simply pointing at the screen, users can manipulate the object being displayed in 3D.

III What is the technology behind it?

The system is capable of detecting movements in 3 dimensions without ever having to put your fingers on the screen. You can point out your hand at the distance of 5 feet also you can also rotate your objects in 3D. The technology we usually use on the Touch less screens are capacitive and resistive sensing technologies. To the working of these methods there should be considered of some points to consider into account. They are:

- A conducting metal coated at the top with a poly-ester coating.
- A glass layer beneath the spacing with a conducting transparent coating.
- An adhesive layer beneath the glass layer.

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. The system is capable of detecting movements in 3-dimensions without ever having to put your fingers on the screen. Their patented touch less interface doesn't require that you wear any special sensors on your hand either. You just point at the screen (from as far as 5 feet away), and you can manipulate objects in 3D. Sensors are mounted around the screen that is being used; by interacting in the line-of-sight of these sensors the motion is detected and interpreted into on-screen movements. Elliptic Labs says their technology will be easily small enough to be implemented into cell phones and the like.



Touch-less Gives Glimpse of GBUI:

We have seen the futuristic user interfaces of movies like Minority Report and the Matrix Revolutions where people wave their hands in 3 dimensions and the computer understands what the user wants and shifts and sorts data with precision.

ouch-less SDK:

The Touch less SDK is an open source SDK for .NET applications. It enables developers to create multi-touch based applications using a webcam for input. Color based markers defined by the user are tracked and their information is published through events to clients of the SDK. In a nutshell, the Touch less SDK enables touch without touching. Using the SDK lets developers offer users "a new and cheap way of experiencing multi-touch capabilities, without the need of expensive hardware or software. All the user needs is a camera," to track the multi-colored objects as defined by the developer. Just about any webcam will work.

Touch-less demo:

The Touch less Demo is an open source application that anyone with a webcam can use to experience multi-touch, no greediness required. The demo was created using the Touch less SDK and Windows Forms with C#. There are 4 fun demos: Snake - where you control a snake with a marker, Defender - up to 4 player version of a pong-like game, Map - where you can rotate, zoom, and move a map using 2 markers, and Draw the marker is used to guess what…. draw!

IV What's next??

Many personal computers will likely have similar screens in the near future. But touch interfaces are nothing new -- witness ATM machines. How about getting completely out of touch? A startup called LM3Labs says it's working with major computer makers in Japan, Taiwan and the US to incorporate touch less navigation into their laptops, Called Airstrike; the system uses tiny charge-coupled device (CCD) cameras integrated into each side of the keyboard to detect user movements. You can drag windows around or close them, for instance, by pointing and gesturing in midair above the keyboard.You should be able to buy an Airstrike-equipped laptop next year, with high-end stand-alone keyboards to follow. Any such system is unlikely to replace typing and mousing. But that's not the point. Airstrike aims to give you an occasional quick break from those activities.

V Conclusions:

Touch less touch screens are most widely used in various areas. In this paper I have explained about what the technology behind this is and how these screens are done. By these touch less touch screens the humans may get relaxed from typing on the keyboards.

References:

1. https://en.oxforddictionaries.com/definition/touchless
2. http://www.123seminarsonly.com/EC/Touchless-Touchscreen-Technology.html
3. http://www.touchlesstouch.com/howitworks.php#.XMAAW84za1s
4. https://www.hongkiat.com/blog/motion-sensing-gadgets/