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Touchless Touchscreen Technology using GBUI

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ABSTRACT: The first catalyst was touch screens. Gone are the days of touch screen and scratching them up. To avoid repeated touching of the touchscreen display with a pointing device such as a finger, a simple control method has been developed for Touchless control of electrically operated machines. Elliptic Labs' technology allows for touchless control of devices such as computers, MP3 players and mobile phones. The touchscreen display gives the user more flexibility, but after a few years, the touchscreen display becomes less sensitive, resulting in touch failure on the touchscreen display. To avoid this problem, a simple method has been developed for touch Free control of electrically driven devices.

KEYWORDS: Data hiding, AES, encryption, decryption

I. INTRODUCTION

Touchless touch screen technology uses finger movements without the use of a screen. It simply uses a wave of the hand in one direction or a tap in one place. If the touchscreen display breaks, we can't just touch the display and move the device around. These touchless technologies aim to make life easier and more convenient This system requires a sensor, but it is not manually installed or visible on the screen. The sensor can be placed on a table or near a screen. The hardware system is so small that it fits on the screen of devices such as mobile phones or laptops. Allows you to determine the location of an object from different angles. A touch-powered electrode is operated using a simple control method. Unlike other systems, the sensor or sensor selection is determined by hand, or finger movements, such as hand vibration in one direction, hand tap in one position, holding hand in one position, pointing with one finger or This device uses optical pattern recognition and solid-state optical with a mirror. Using a sensor in the matrix, it detects the movement of the hand. The sensor on the matrix is then connected to a digital image processor, and the results are output as signals for placement control. The demand and acceptance of standard touch screens for portable and useful electronics is from smartphones, tablets, and many other information devices are popular Touchscreens are used in heavy industry, medical, automated teller machines (ATMs); , or museum exhibits It also takes place in kiosk like indoor automation where keyboard and mouse technology allows the user to interact with objects in the display in a reasonably simple, fast way or accurate.

II. LITERATURE

The best and most common technology we have by far is touchscreen technology. And it soon became very popular. The popularity of various electronic devices like smartphones, tablets, laptops etc. was the main reason why there was touch screen demand and acceptance for portable functional electronics Everyone loves touch screen and when you get a device with touch screen works the experience is really enjoyable. When the I-phone was introduced, everyone felt the same but slowly the boom started to fade. When using the phone with the fingertips or using the stylus, the screen started getting a lot of fingerprints, scratches, screen damage, etc. So, the concept of making the screen untouchable and checking the travel on the machine without touching by just fingers developed fingers in the air. Now it looks like touchscreen will soon take over touchless technology. This was made possible by Microsoft's release of its kinect technology. No one ever thought it would be big enough to use touchscreen technology. Opinions are beginning to change according to the latest data. According to the BBC, XTR3D, an Israeli company is now planning to introduce smartphones and tv's with unconnected technology. With this new technology, people can change the channels of their TV with just a gesture without using any remote control. According to an XTR3D spokesperson, the XTR3D technology has all the advantages of a 3D camera – it can work in bright daylight, is much cheaper, and uses less power It can be mounted on any consumer electronic device in the field of. And the best part is, this is not just a review, the company expects to release the motion control smartphone to the market, early next year .



III. METHODOLOGY

3.1 Touchscreens with resistance:

The resistive touch screen technology is one of the most fundamental systems in ATMs. Two Electrically conductors one resistive and one conductive—connect this system. Spacers keep these two layers apart until you touch them, and they separate. The final component of the system is the indestructible surface. Current always flows between the two layers. Where the two layers of the screen are in contact when touched, the current is exchanged. The software calculates the changes in electric field and shape, and then performs location-specific actions. Despite its complexity and consistency, the system is capable of one-touch support. Almost all high- end devices have capacitive touch screens for this reason.

3.2 Screens with capacitive touch:

In capacitive systems, a layer that retains the electric charge, can be copper or indium tin oxide among others is used. The configuration of the device is ending with the presence of sensors in corners and protective casing. On the softer corner of the touch screen, a very little amount of voltage is applied. How does it work then? It is worth stating that a capacitor can be created using the human body. Thus, it shall be able to carry electricity. Hence, certain of the charges are transferred to the user each time the user uses his or her finger to touch the screen. All the zones of the screen respond to this. In the case of the electric current, its value will differ dependent on the touch point on the corner. This relative difference allows the programmer to determine the exact location of the touch and then perform other related operations with regard to that location.

3.3 Displays with infrared touch:

It is the less-used or less-accurate one or, more simply, the secondary/second one. I right- and left-side of the screen LEDs and Light- detecting photocells are placed. Infra-red light emitted from the LEDs is directed in front of the screen forming what looks like an invisible spider-web. A user can pause two or more beams if he touches the screen in a particular area. This makes it easier for the controller to examine the exact locality where the touch took place, and the action pertinent to it. Infrared screens can be operated with a finger, a stylus, or even when one is wearing gloves; this is because a beam is not involved. It should also be noted that gloves, for the most part, do not conduct electricity; as such, attempting to use a capacitive touch screen with them on will not work. Infrared touch screen is used in most of the eBook readers; the Sony and Amazon Kindle are some of the common eBook readers that use the infrared touch screens.

3.4. Surface Acoustic Wave Touch Screen: Fingers are detected by surface acoustic waves utilizing sound rather than light. Its surface reflects ultrasonic noises that are too high- pitched for humans to hear back and forth. The user stops the sound beam when they contact the screen, and the position of the touch is then determined.

IV. MODELING AND ANALYSIS

4.1 Wave Flow

Sensors are positioned all over the screen; interaction occurs in the sight of these sensors and the motion achieved on the screen corresponds to the motion made in the physical world. The system shown employs a solid state optical matrix with a lens for the monitoring of hand gestures, and is founded on optical pattern recognition. That is then connected to a digital image processor that deciphers the motion patterns it detects and send signals to switch on lights, or any electrically manageable item that has been programmed. Laser markers include the following three infrared lasers to sweep across a surface. It can locate an object within a distance of about five feet.



Figure 1: Wave Flow of Touchless Touch Screen

4.2 Gesture Based Graphical User Interface (GBUI)

Hand motions are converted into computer commands using a Leap motion controller. Initial studies were performed to determine how the controller operated and to comprehend fundamental interaction. The controller is used to test whether sign language can be recognized. The fingerspelling alphabet was chosen because of the relatively straightforward nature of individual signs and the wide variety of motions that make up the alphabet.



Figure 2: GBUI Symbols

4.3 3D Navigation of Hand Movements: There are sensors placed surrounding the screen which is in use and through changing the line-of-sight of these sensors the motion is translated to on-screen motion. There is a stop of unintentional gestures being used as input that are not clear, however it seems promising. The system is capable of detecting movements in 3-dimensions without ever having to put yourfingers on the screen. Touch less interface does not in any way compel us to have to wear any badges on our hand for navigation control. We have to point fingers at the screen and manipulate object in 3D. Proprietary of the Touch less touch screen is that the technology will be easily small enough to be implemented into mobile and everywhere.





V. RESULTS AND DISCUSSION

The development of touchless technology is ongoing. With several Future Aspects, our bodies could become input devices in a few years. The Touchless touchscreen user interface works well with laptops, desktops, webcams, and mobile devices. In a few years, it's possible that our bodies may be converted into input devices like a virtual keyboard, mouse, or both. While the tool seems powerful, the corresponding API is not yet ready to be translated to all sign languages. The controller can now be used extensively for basic signal recognition; however, it is not suitable for complex markings, especially those requiring prolonged exposure to the face or body. Large rotating digits and visual barriers during conversation make the signal blurry and indistinguishable, rendering the controller (currently) useless for communication but if the signal is treated as discrete objects that, obviously, will be programmed into artificial tissues [5]. The touchscreen on the computer screen is usually the most important input or output. When one or more touchscreens are moved, the user enters data or controls the use of that data. Instead of using an intermediary mechanism, it allows the user to interact directly with what is being displayed. Thanks to touch screens, many features are now much easier to use. It often acts as an anti-touchscreen device in ATMs. There are two electrical conductor layers, one resistive and the other novel. The line dividing these two lines separates them until they touch. The two layers are constantly broken by automatic current. The two layers are snapped together when it can touch the screen and the automated current changes just before contact. The software calculates the changes in the computer and its coordinates before performing a function similar to that location. Touchless technology is a subset of gesture control technology that aims to establish control between humans and computers without the need for physical interaction or large amounts of data It relies on human development, gestures and behavior analysis using algorithms, like all other gesture control technology systems.

VI. CONCLUSION

This paper provides an overview of touch-free screen technology. The use of this technology allows the user flexibility to use the system accordingly. The proposed hands-free technology is suitable for Android mobile phones, laptops, ATM machines, and other devices. The maintenance work of a touchscreen display can be reduced by using this technology. Touchless touching Technology is constantly evolving. Today's thoughts revolve once more around the user interface. Day in and day out, efforts are made to improve technology. The touchless touchscreen user interface works well on computers, cell phones, webcams, and laptops. Perhaps in a few years, our bodies will be transformed into virtual mice, virtual keyboards, and so on.

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