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To Design and Develop Touch Screen based on Video Processing

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Abstract: Human Computer Interface defines how the user interacts with the system or a computer. Currently, the most trending HCI option available is a Touch screen. This main highlight of this paper is to shed light on different types of touch screens and their alternatives.

Keywords: Information processing system; Video processing; Touchscreen; HCI

I. INTRODUCTION

A touch screen is an important source of input device and output device normally layered on the top of an electronic visual display of an information processing system. A client can give info or control the data preparing framework through straightforward or multi touch motions by touching the screen with an extraordinary stylus or potentially at least one finger. A few touch screens utilize normal or extraordinarily covered gloves to work while others utilize an exceptional stylus/pen as it were. The client can utilize the touchscreen to respond to what is shown and to control how it is shown; for instance, zooming to build the content size. Touchscreens are normal in gadgets, for example, amusement comforts, PCs, tablet PCs, electronic voting machines, and cell phones. They can also be attached to computers or, as terminals, to networks. They also play a prominent role in the design of digital appliances such as personal digital assistants (PDAs) and some e-readers.

II. LITERATURE SURVEY

A. 3D Finger Posture Detection And Gesture Recognition On Touch Surfaces [1]

FPGA (Field Programmable Door Clusters) innovation with full parallelism, colossal limit of advanced circuits, high working rate, on-chip flag preparing conceivable outcomes and reasonable value, demonstrates a possibility to fathom a portion of the above issues. This paper introduces a FPGA based approach for detecting which incorporates negligible number of outer segments and seems, by all accounts, to be reasonable for human-machine, bio-compound and mechanical multi sensor interface. Gesture-based interfaces ought to end up plainly more common as signals are among the most essential and expressive types of human correspondence. Nonetheless, present day models of signal association on touch surfaces remain moderately simple. Organizations like Apple and Microsoft are step by step bringing motion analogies into their items, however they are as yet constrained to extract motions like the "four-finger swipe" or primitive similitudes, for example, "squeeze to zoom." Critical advance could be made in the territory of motion acknowledgment, taking into account the presentation of more intricate motion illustrations and therefore, more mind boggling communication situations. Utilizing a 3D finger act as opposed to only the 2D contact point in motion definition opens the way to exceptionally rich, expressive, and natural motion representations.

In this paper, we consider the association situation of the client performing finger signals on a level, touch-touchy surface. Each finger reaching the touch surface has a position and stance characterized in a facilitate framework shown in Fig 1.

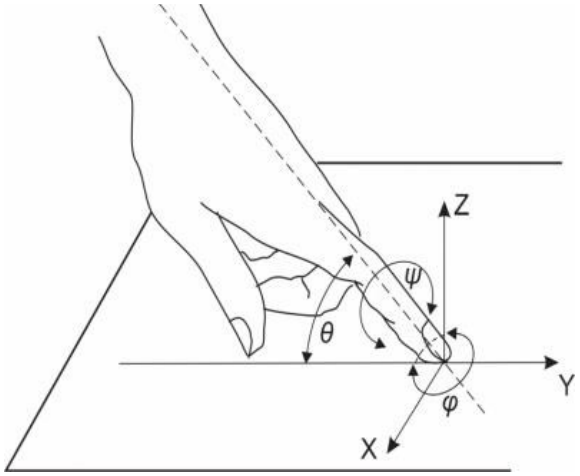

Fig 1. Analyzing Touch on a touchscreen

The disadvantages of touch screen based system are:

- Fat finger fumbles
- Costly
- Trapped dirt hurts
- Its complex

- Calibration
- Scratching and damage

B. *Hand Gesture Based User Interface for Computer Using a Camera and Projector*

In this paper, we propose a hand gesture based human computer interaction system comprising of a webcam and a pocket projector. The projector projects the display on the wall on any other plain surface. User can interact with the projected screen using his fingertips which are tracked in air by the camera using `Camshift' tracker. A comparative study of different methods of hands and fingertips detection has been made. A robust method has been developed to detect and recognize single stroke gestures traced with fingertips, which are then translated into actions.

As the need of mobility is growing, computing devices are becoming smaller and easier to carry for the user. With this miniaturization, we can access the information anywhere and everywhere but this does not allow us to have input interfaces that have a wide operational area naturally required by humans. On the other hand, multitouch and gesture-based input interfaces do offer a wider operational area providing a very intuitive and natural interactive experience for the user, who can thus directly interact with information. But unfortunately, these interfaces fail to provide mobility.

III. CONCLUSION

Touch screen based systems have many disadvantages. They are not only cost effective but also needs a lot of maintenance. Hence these kinds of systems are user friendly and do not require much maintenance and are easy to use. It also saves power and time.

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