# WEBTOR SURFACE

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**Abstract- A Multi- Touch surface is essentially a giant touch screen that can process multiple touche s at once. By allowing multiple touches, gestures can be p erformed on surface. These gestures are typically simple things like pinching and pulling on an image to zoom in and out. By supporting gestures like these, interfacing with a computer becomes much more intuitive and fun.**

**The idea is that this would allow users to interact multiple points of input. The interactivity will attract lots of potential users.**

## I. INTRODUCTION

Multi-touch technology began 1 982, when University of Toronto's Input Resea rch Group developed the first human-input multi-touch system. The system used a frosted-glass panel with a camera placed behind the glass. When a finge r or several fingers pressed on the glass, the camera would detect the action as one or more black spots on another wise white background, allowing it to be registered as an input. Since the size of a dot was dependent on pressure (how hard the person was pressing on th e glass), the system was somewhat pressure-sensitive as well. In computing, multi-touch refers to the ability of a surface (a track pad or touchscreen) to recognize the presence of more than one or more than two poin s of contact with the surface.[1]

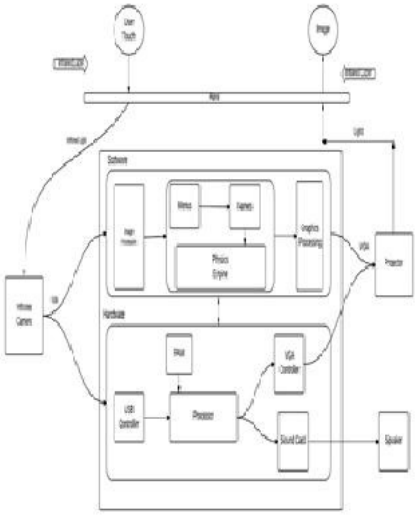
This plural-point awareness is oft en used to implement advanced functionality such as pinch to zoom or to activate certain subroutines attached to predefined gestures.There are several oth er similar or related terms that attempt to differentiate between whether a device can exactly determine or only approximate the location of different points of contact.[2].Multi-touch has been design in several different ways, depending on the size and type of interface. The most popular form are mobile devices, tablets, touch tables and walls. Both touch tables and touch walls project an image through acr ylic or glass, and then back-light the image with LEDs

The optical touch technology functions when a finger or an object touches the surface, cau sing the light to scatter, the reflection is caught with sensors or cameras that send the data to software which dictates response to the touch, depending on the type of reflection measured.

FIGURE 1: MULTITOUCH SURFACE

Touch surfaces can also be made pressure-sensitive by the addition of a pressure-sensitive coating that flexes differently depending on how firmly it is pressed, altering the reflection. Hand held technologies use a panel that carries an electrical ch arge. When a finger touches the screen, the touch disrupts the panel's electrical field. The disruption is r egistered and sent to the software, which then initiate s a response to the gesture.

## II. ARCHITECTURAL DIAGRAM



In analyzing the block diagram, we will begin at the top. The user touches the panel, and in doing so crosses the laser light plane. The infrared light then travels down to the camera (bottom left), which sends its image data to the processing unit. The hardware of the processing unit is not very unique, so it will not be discussed in detail here. However, the software should be considered.

For image processing, the system must convert the image feed from the camera into user actions. Finger touches appear to the camera as light colored "blobs" on a dark background.[3]

The image processing then determines the X and Y locations of these blobs, and also tracks them. It needs to determine which are new touches, which are fingers being dragged, and when the user has stopped touching.

The applications consist mainly of menus and games. The menus provide a GUI through which the users can navigate the various games, their options, and table settings and configuration. The most common menu element is a button which is considered "pressed" when the user touches it. The final software component is the graphics processing. This converts the current application or game state into an image so that the user can understand what is going on. When objects move, their positions on the screen should be changed. The projector receives the image via VGA cable and displays it. The image is displayed on the same panel that the user touches. A sheet of acrylic sheet provides a surface where the image can form. In this way, the entire system is seen by the user as a touch surface device.[4]

## III. HARDWARE AND SOFTWARE REQIREMENTS

***3.1Minimum hardware requirements:***

PC Pentium multi core processor. NVidia
GeForce 470 Graphics Card
1 300GB 10,000 RPM SATA hard disk drives in a RAID 1
4 GB Ram. Webcam
Lan connectivity. 20GB
HDD space. Projector.
FTIR screen with IR strips

***3.2Minimum software requirements:***

-Windows XP, Windows 7 Professional -Visual

Studio 2010, C#.net

-Sql Manager 2008 -Open

CV 2.4.8

## IV. ADVANTAGES

Multi-touch technology has the potential to replace traditional input devices such as the keyboard and the mouse with an "invisible" interface that enables new ways of interacting with information. As easy as it is to get drawn in by the input device itself, the real power in multi-touch is in the software and it's ability to utilize gestures and hidden menus.
The simplicity and intuitive nature of multi-touch is such that it requires no formal training, it is an intuitive medium that is more natural to how our brains work. This will allow users to work more efficiently and effectively as they focus on the task at hand, rather than the individual (PC based) technology that separates the creative collaboration.

When you add the integration of other technologies into the mix, the potential for multi-touch technology has world changing implications on our workplace, education, and for how we live at home. A Star Trek future may not be that far away. In the future it will be ubiquitous from a majority of cell phones to standard computer interfaces as soon as 2012.[5]
Possibly the greatest advantage is the ability for multi-touch to be a multi-user experience. Large format screens would allow for group collaborative efforts that were previously not possible. Screen technology from Microsoft is intriguing but has limited possibilities due to its size constraints, expense, and form factor. When you begin to think of screen sizes in excess of 10ft in length, things can get really start to get interesting.[6]

## V. V LIMITATIONS

There are some disadvantages for the multi touch that might be a problem to some and to others might be only a simple accommodation to new technology.[7]

Touch screen interfaces are nearly all "eyes on". You cannot type by touch while your eyes are occupied elsewhere like most cases of 12-17 year old kids than can text and type without looking. With an all touch-screen interface you generally cannot start, stop, or pause your MP3 player, for example, or close and answer your phone by reaching into your pocket, purse, or briefcase like you usually do since you don't have a one mechanical key to memorize it's location and operate eyes free. This risks serious accidents for example if someone tries to operate a multi touch car radio while driving.

Handheld devices that rely on touch screens for input require two hands to operate: one to hold the device and the other to operate it. Thus, operating them generally requires both eyes and both hands. Unlike the usual phones that can be operated and held using one hand: one hand to hold the device and a finger of the same hand to operate it.

## VI. CONCLUSION

We examined the differences in collaborative software design amongst groups of students working in pc-based and multi-touch table-based conditions. We hypothesized that the multi- touch table would increase the effectiveness of the collaborative process. Multi-touch environment increases the quality of participation and encourages parallel-participative design. With help of gesture recognition we can show what multi-touch surface is capable of. By allowing multiple touches, gestures can be performed on surface. These gestures are typically simple things like pinching and pulling on an image to zoom in and out. By supporting gestures like these, interfacing with a computer becomes much more intuitive and fun

## VII. REFERENCES

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