

Interactive Technology Application in Child Education

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ABSTRACT

Interactive touch technology is an advanced human-computer interaction technique which use for recognizes multiple touch points. It includes the hardware devices that used for implementation and it will allow users to access without conventional input devices. Interactive touch consists of a touch screen and software that recognize multiple simultaneously touch points in contrast with the standard touch screen which recognize only one touch point at a time. Interactive touch frustrated total internal reflection is a simple and accessible technique for enabling high-resolution interactive touch sensing on a real projected interactive surface. This application defines different learning activities for children and it proposes the interaction to enhance learning concept. It will help to develop the overall growth of children via this technology.

Keywords : Multi-Touch, Interactive Technology, Touch Screen, Interaction Technique, Community Core Vision

I. INTRODUCTION

Multi-touch technology is an innovative human and computer interaction technique that knows the multiple simultaneous touch points and it also includes the devices or hardware device that implement it, which allow users to compute or operate without predictable input devices. Multi-touch contains of a touch monitor such as screen, desk, wall or touchpad same as a software that recognize multiple simultaneous touch points, as contradictory to the standard touch screen which recognizes or recognizes only one touch point at a time. Multi touch using dispirited total Internal Reflection is a simple, inexpensive, and scalable technique for allowing the high-resolution multi- touch identifying on rear-projected interactive surfaces. Different presentation or applications for multi-touch interfaces both exist and are being recommended. Some uses are distinctive e.g. iPhone, iPod touch, MacBook Pro, MacBook.

II. PURPOSE OF INTERACTIVE TOUCH SYSTEM

Touch screens are used in many areas but it is not efficiently used. In many schools touch screen is used instead of board or it is used as board for education purpose but in that system only teacher can access the

system. This system is not allowed to student so students are sitting on their seat and study only. There is no specific use of touch screen because all the activities are performed by the teachers and another problem is that if student try to access the system but he/she cannot reached up to that screen.

The aim of the system is to gives the solution to student and teachers. This system aims to provide multi touch screen table which can be access by teachers and as well as student also. The major focus of the system is that students are learning all the activities with fun because the system provides attractive features

III. LITERATURE REVIEW OF INTERACTIVE TOUCH SYSTEM

[1] The multi-touch interface may provide graphical representations that are manipulated by users through multiple points of contact to participate in games running on an external game console. Additionally, user authentication may occur through multiple points of contact with the multi-touch interface where each user has a unique contact pattern that includes points of contact, location of points of contact, rhythm of points of contact, and so forth. The graphical representations may be customized based on the authentication of a user, and the multi-touch surface may be partitioned based on the number of users present.

[2] A touch sensor includes conductive elements of substantially concave shape to enable detection of multiple simultaneous touches in at least two directions, with reduced noise sensitivity and enhanced accuracy. The shapes of the conductive elements may be similar, or may be alternating, complementary shapes that cover substantially all of the sensor area. The conductive elements physically interact with adjacent elements in such a way that the area covered by a touch Changes to overlapping substantially all of an adjacent element as the touch area is moved from one element to the other element along a line between the centres of those adjacent elements.

[3] Systems are disclosed herein that can capture image data reflecting real world objects and/or actions and convert this data into a format that, is usable in a virtual universe (VU). Thus, image data representing real world/actual objects and actions can be acquired, converted into virtual universe compatible data, sent to a VU server where the actions and objects can be associated with a virtual area or an avatar, and a recreation of the objects and actions can be displayed to a user in the VU. This allows a participant to customize activities and objects in the VU, and provide a unique “personality” for their avatar and their VU. Other embodiments are also disclosed.

[4] A multi-player gaming system sensing multiple simultaneous contacts on a surface of a gaming table, differentiating contacts by different players. Privacy controls selectively display private information visible to only one of the players on or near the display surface of the gaming table. The gaming system also detects physical objects placed on the surface of the gaming table, causing wagering game functions or peripheral functions to be performed as a result of the placement of the object on the display surface [5] This invention extends to methods, systems, and computer program products for processing multi-touch inputs. It provides a method for continuous recognition of multi-touch gestures performed by one or more users on at least one multi-touch input device. The invention in one aspect allows users to start interacting with one multi-gesture and subsequently perform any other multi-touch gestures, if they want it, without needing to lift all their fingers off the multi-touch input device between each multi-touch gesture.

IV. METHODS AND MATERIAL

Modification of a webcam is necessary to detect the IR blobs that are generated by your fingers. IR is not visible to the human eye, neither is it to most of the webcams. Some webcam’s detect IR, but not as clear as it should be, for this project. Every webcam can detect IR, but this option is not available because, there’s an IR-block filter inside the webcam that blocks IR. So the camera is able to detect all visible light, but not the IR. To see to it, that the webcam detects the IR, we need to remove the IR-block filter from the webcam. So it will detect all visible light including IR.

For removing this IR-block filter, we have two options:

- Removing the IR-block filter manually
- Replace the current lens with another lens that has no IR-block filter

In some cases the IR-block filter is painted on the lens and you can scratch it off. But be careful that you don’t leave scratches on the lens. But in most cases, it’s impossible to remove the IR-block filter, without damaging the lens, because it’s glued to the lens. In that case, it’s wise to replace the default lens with a special lens that doesn’t have an IR-block filter attached to it. Try to find a lens that looks like the one below. Once the webcam is modified to being able to see normal light as well as IR-light, there is a need to apply an IR-pass filter. This IR-pass filter, let’s all the IR through, but blocks out most of the visible light.

There are different materials that can be used for this purpose:

- IR-pass filter
- IR-band pass filter
- Remote control filter
- Black photo negatives

We have used Black Photo negatives for as IR filter because if budget scenario.

- Black photo negatives

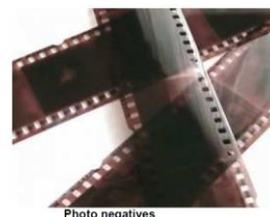
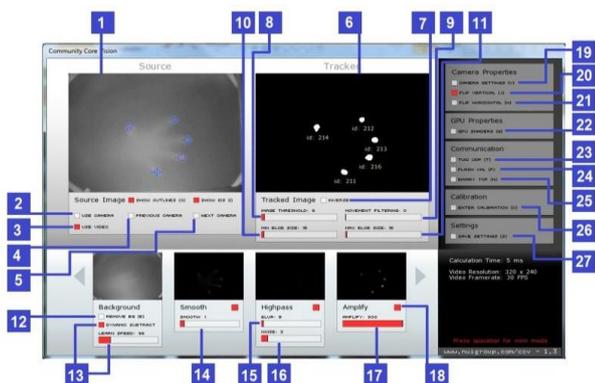


Photo negatives



Software

Multi-touch programming is two-fold: reading and translating the “blob” input from the camera or other input device, and relaying this information through pre-defined protocols to frameworks which allow this raw blob data to be assembled into gestures that high-level language can then use to interact with an application. TUIO (Tangible User Interface Protocol) has become the industry standard for tracking blob data, and the following chapters discuss both aspects of multi-touch software: touch tracking, as well as the applications operating off of the tracking frameworks.

System Application

System Application define different learning activity for a children. This application proposed the interaction to enhance the learning concept. Each modules are designed to teach specific educational concept with fun. With this, child can play games to learn the alphabets, to learn new words, to learn about numbers and shapes and even to learn about Arts &Paint and planets.



V. CONCLUSION

- Touch screens address the inconsistent difficulties for smaller transportable electronics with advanced presentations, by eliminating customary buttons without losing screen size.

- The contemporary release of the iPhone has produced a buzz around touch screen interfaces and its multi-touch acrobatics have gathered the perceptiveness of many industry leaders. There are several ways to make a multi-touch screen.
- Some of the early designs measured the alteration in electrical conflict or capacitance on a surface when fingers moved it. But these devices have restricted determination, are comparatively composite, and don't easily and reasonably measure up to large scopes. Multi-touch technologies have a long history. This technique using computer vision is simple and easy to implement.
- It provides any determination presentations supported with high visuals.
- The applications being both finished and projected are plenty in number. A shortcoming of the approach is that, being camera-based, it needs a major volume of interplanetary behind the communication surface, though we principally assume application scenarios where rear-projection would have been active anyhow (e.g. interactive walls, tables).
- Also, as a photosensitive or visual system, it remains susceptible to harsh lighting environments.

VI. REFERENCES

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