

A Review Paper on Sixth Sense Technology

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Abstract—Today is the world of technology, sixth sense plays a VITAL role in human's life. Sixth Sense is a wearable gestural border that augments the real world around us with digital information and lets us use natural hand gestures to interact with that information. sixth sense technology is a new and interesting technology which is neck-worn device that is, sleep/wake, detecting supine airway position which is used by every people. The user is connected with sixth sense technology by internet. considering, feeling, smelling, tasting and hearing are the five basic senses. A pocket projector, a mirror and a camera contained in a pendant-like, wearable device is use in Sixth Sense technology. The Sixth Sense example is used to implement some applications that have shown the effectiveness, possibility and elasticity of the system.

Keywords— gestural interface gadget, wearable gadget, technical field, sixth sense technology.

I. INTRODUCTION

Sixth Sense Technology is a mini-projector coupled with a camera and a cell phone—which acts as the computer and connected to the shade, all the information stored on the web. Sixth Sense can also obey hand gesture. Sixth Sense device aim are the principles of gesture acknowledgment and image processing to capture by fingers. It is similar to Telepointer, a neck worn projector/camera system developed by Media Lab student Steve Mann (which Mann originally referred to as "**Synthetic Synesthesia of the Sixth Sense**") [We've evolved over millions of years to sense the world around us. We use our five natural senses to perceive any information; that information helps us make decisions and choose the right actions to take. and zoom in and zoom out and snap pictures with simplicity just by the help of colored caps worn on the fingertips of the user. Now there are many forms of digital world available like

the, video newspaper, computers, smart phones, tablets and many more.

So we can say that the sixth sense technology works as an access point between digital world and real world. Pranav Mistry is developer of this technology and this is PhD student in the Fluid Interfaces Group at the MIT Media Lab. The projector projects visual information enabling surfaces, walls and physical objects around us to be used as interfaces; while the camera recognizes and tracks users' hand gestures and physical objects using computer-vision based techniques. The software program processes the video stream data captured by the camera and tracks the locations of the colored markers (visual tracking fiducially) at the tips of the user's fingers. we analyze in this paper. That this technology will give humans the freedom to use computer everywhere and anywhere, the entire world will be a computer due to this technology.

II. SOFTWARE/HARDWARE REQUIREMENTS

Software:

The software for the sixth sense prototype is developed on a Microsoft Windows platform using C#, WPF. Software program processes the video stream data captured by the camera, and this video mented using JAVA 2MICROedition. the computer vision library is written in c++ that means Gesture tracking, the Sixth Sense software will be open source. As far as this seems to be a little set of items, there will not be user interfaces or much advanced programs for the users. It is interesting to know the new language for coding for a Sixth Sense device. There will be much harder and secured coding inside the device to make sure the security of the software.

Hardware:

Many hardware use in sixth sense technology which are projector, mirror and camera and colored finger marked.

1- Colored Marker:- four type Colored marker are used in this technology for marking the user's finger with colour blue ,green, yellow, red, . Its placed at the tip of user's fingers here web cam to recognize the hand gestures.[11]



2-Mirror:

The mirror performs special task in this prototype. Since the projector is pointed downward, the mirror helps to reflect the image on to a desired surface such that the digital image is freed from the confined screen and placed in the physical world.

3-Microsoft-enabled Laptop:-

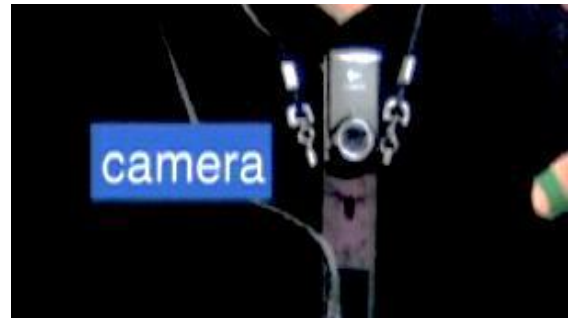
The Laptop can be used for running or implementing the code written on the MATLAB tools for executing the concept of image processing.

4- Projector:-

A projector opens up interaction and sharing. The project itself contains a battery inside, with 3 hours of battery life. The projector projects the visual information enabling surfaces and physical objects to be used as interfaces. A tiny LED projector displays data sent from the smart phone on any surface in view—object, wall, or person.

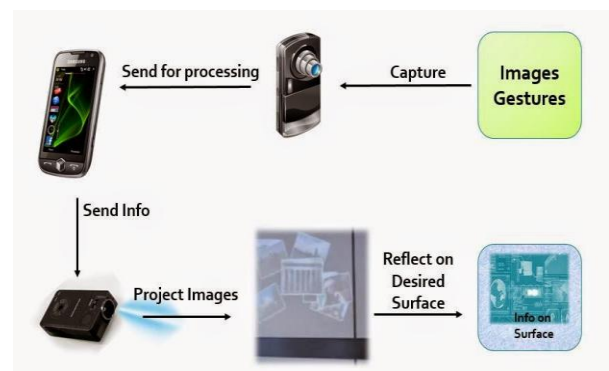
5-Camera:- Make a grasping or snatching motion with the hand and capture the attention or imagination by colored markers worn on the fingertips and tracks the users hand gesture . if we have to take picture of any beautiful things

or any things then we do not need a camera. Smart phones receives the data from the camera for processing. Here camera is the digital eye which connects to the outside world in the digital format.



Working:-

It has a camera, a mirror and a projector and is connected wirelessly to a Bluetooth or 3G or wifi smart phone that can slip comfortably into one's pocket. A number of standard gadgets are connected including a mini projector, camera and projector both are connected from a mobile phone, microphone and a mirror. Camera capture the image and send processing to smart phones and smart phone send information to projector ,this image reached on mirror and a mirror reflect information or image on surface. Sixth Sense supports multi-touch and multi-user interaction.[2].this technology is work on computer based vision .



III. APPLICATIONS

1-Time without watch: Time can be viewed merely by drawing a circle on the wrist instead of physically wearing a wristwatch on hand.



2-3d drawing: Provides a pencil that allows users to draw in 3D, a good way to learn for the beginners in the field of 3D modeling.

3-Call using palm as dialer: It gives the provision of using the hand as a screen onto which the dialer is projected, using which an individual can make a call. We can dial a number on hand by colored marker use's finger.



4-Video newspaper: in this application we can see the video on newspaper and It determines the news headline and the displays the appropriate video. By this technology life worked easy way.

5-Zoom in Zoom out: It helps to view images and related things in the way one wants to see. The user can zoom out or zoom in using intuitive hand movements. in this technology, user can focus on deep study of the articles without using computer. Secondly, pictures can

be magnified and contents can be deeply visualized.

6-Augmented Reality:

augmented Reality gathers a extensive variety of user experiences. We decide 3 main categories of Augmented Reality tools. Augmented Reality 3D viewers, allow to place life-size 3D models in your situation with or without the use of trackers. Augmented Reality browsers improve your camera feed with related information. For example, you can point your Smartphone at a building to display its estimated value. Augmented Reality games create immersive gaming experiences.

7- Gesture recognition:

Gesture recognition can be seen as a way for computers to begin to realize human body language, thus structure a comfortable bridge between technology and humans than primitive text user interfaces or even graphical user interfaces, which still limit the majority of input to keyboard and mouse. Gesture recognition enables humans to interface with the machine and interact naturally without any mechanical devices.

8- Computer vision:

In computer vision the computer can extract the information from an image that is necessary to solve a specific task. Computer vision is, in some ways, the inverse of computer graphics. While computer graphics produces image data from 3D models, computer vision often produces 3D models from image data. On the other hand, studies and describes the processes implemented in software and hardware behind artificial vision systems. The software tracks the user's gestures using computer-vision based algorithms. There is also a trend towards a combination of the two disciplines, e.g., as explored in augmented reality.

9-Get book information



Book information

Mese says Sixth Sense uses image recognition or marker technology to recognize products you pick up, then feeds you information on books. The system can project Amazon ratings on that book, as well as reviews and other relevant information

IV. ADVANTAGES OF SIXTH SENSE DEVICES

- 1-Sixth sense technology Use in industries it makes machines like computers to adapt to human needs and not the other way round.
- 2-Sixth sense is multi-touch and multi-user interaction are also supported. This technology can be used by anyone without having the basic knowledge of keyboard or mouse.
- 3- It is open source, Data from machine is directly accessed into real time.
- 4-it is cost effective and map idea can be minded anywhere. A basic sixth sense device sums up to \$300.
- 5- Need to carry a camera no longer persist.by this technology we can capture the image easily.
- 6-It is highly portable

V. DISADVANTAGES OF SIXTH SENSE DEVICES

- 1-This technology has to all the time with human body parts. So high waves radiation emitted may cause severe diseases.

- 2-It requires charging devices and the complete kit has to be recharged at continuous intervals. This cannot be used for long period of time as it has less battery backup.

- 3-Excessive use of a technology can cause addiction and can hamper social life as well. It will in-turn diminish humanness.

- 4-This technology will affect the hardware market and will result in less revenue being generated and lower the cash inflow.

- 5-It can affect the vision of the user because of its peculiar and better use at night time and in dark areas as compared to mornings and bright places.

VI. FUTURE SCOP

Further development in this technology new devices and hence forth new markets will evolve. Hardware used in the current technology can be perfected as it plays an important role in this technology by interacting with the user. First thing is to provide the security for the Sixth Sense applications and devices. Lot of good technologies came and died due to the security threats. Security of the current technology can further be improved and more accuracy should be aimed for. Enhancements should be made so that visually impaired people can use this technology. The current technology is a little bulky to carry around, so few improvements can make it user friendly. Mystery made his own tablet computer much before they hit the market, using just a piece of paper, a microphone and a camera. This technology enables one to account, compute and browse data on any piece of paper we can find around. Sixth Sense devices are very much different from the computers; this will be a new topic for the hackers and the other people also. There will be a significant market competitor to the Sixth Sense technology since it still required some hardware involvement with the user.

VII. LIMITATIONS:

There are limitations on the equipment used and image noise for image-based gesture recognition. Images or video may not be under consistent lighting, or in the same location. Items in the background or distinct features of the users may make recognition more difficult. The variety of implementations for image-based gesture recognition may also cause issue for viability of the technology to general usage. For example, an algorithm calibrated for one camera may not work for a different camera. The amount of background noise also causes tracking and recognition difficulties, especially when occlusions (partial and full) occur. Furthermore, the distance from the camera, and the camera's resolution and quality also cause variations in recognition accuracy. (Sousa et al. 2013.)

VIII. CONCLUSION

In this paper we discussed Six sense technologies has perfect applications. Six sense recognize wide varieties of gestures ,it can easily interact with different everyday objects .sixth sense technology has a bright future because it might bring about a change in the way we look at the world .today is more portable and more interactive than any Smartphone, laptop or tablet available . and also define the application,limitation.The masterstroke here is that Sixth Sense identifies the objects around oneself, let us access the information in the way we displays and want that information as well, all this in the most simplest of the ways. This technology is a wearable device that empowers you to have the entire world of advanced data readily available truly. This will enable individuals to make their own application depending upon needs and imagination. Sixth sense is the science of tomorrow with the aim of connecting the digital world with the physical world seamlessly, eliminating hardware devices. It is more effective because this cost limited.

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