

## Sixth Sense Technology

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**Abstract-** In this paper real world is interacting with between digital world by using sixth sense technology. The six sense technology is contains a pocket projector, a mirror, webcam contained in a pendant-like, wearable device. The projector and camera both are connected by using mobile computing device. Webcam used capture photo and resizing that photo .Projector is interacting with by projecting digital information and graphical user interface. Mirror reflects the projection and projector using this projection create location on any surfaces. The software program is freeware so that system runs on this computing device(mobile phone, small laptop).Watch is create the projection on hand by using display the time. Music player are also perform best work in six sense technology. PS and music player work together to guide the direction in voice format. Six sense technology provide the information anywhere at any time. It is used to construct several applications which is useful to human being.

**Keywords :** six sense technology, Hand gestures, GPS, LED.

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### I. INTRODUCTION

All of us are aware of the five basic natural senses which consist of eye, nose, tongue, mind and body to give the perceive information about it; that information helps us make correct decisions. But six sense technology help us make the correct decision without using five senses so this is called as "six sense technology". System do better work more than the human. Mainly the data, information and knowledge that mankind has accumulated about everything and which is increasingly all available online.

Although the miniaturization of computing devices allows us to carry computers in our pockets, keeping us continually connected to the digital world, there is no link between our digital devices and our interactions with the physical world. Information is confined traditionally on paper or digitally on a screen. Sixth Sense bridges this gap, bringing intangible, digital information out into the tangible world, and allowing us to interact with this information via natural hand gestures. 'Sixth Sense' frees information from its confines by seamlessly integrating it with reality, and thus making the entire world your computer.

Sixth Sense is a wearable "gesture based" device that augments the physical world with digital information and let people use natural hand gestures to interact with that information. It was developed by Pranav Mistry, a PhD student in the Fluid Interfaces Group at the MIT Media Lab. A grad student with the Fluid Interfaces Group at MIT, he caused a storm with his creation of Sixth Sense. He says that the movies "Robocop" and "Minority Report" gave him the inspiration to create his view of a world not dominated by computers, digital information and human robots, but one where computers and other digital devices enhance people's enjoyment of the physical world. Right now, we use our "devices" (computers, mobile phones, tablets, etc.) to go into the internet and get information that we want. With Sixth Sense we will use a device no bigger than current cell phones and probably eventually as small as a button on our shirts to bring the internet to us in order to interact with our world! Sixth Sense will allow us to interact with our world like never before. We can get information on anything we want from anywhere within a few moments! We will not only be able to interact with things on a whole new level but also with people! One great part

of the device is its ability to scan objects or even people and project out information regarding what you are looking at.

## **II. WHAT IS SIX SENSE TECHNOLOGY**



**Fig1: SixthSenses**

Sixth sense technology is a technology that can be used to take the real world object into digital world with a minimum effort & a higher accuracy. Six sense technologies is the WORA means it is portable. We can access the information using figure tips. By using this technique user can create symbols, icons in the air by using the gestures of finger and recognize those symbols as interaction instructions. This technology eliminating the hardware devices.

## **IV. EXISTING SYSTEM**

### **Mouse:**

In computing, a mouse is a pointing device that functions by detecting two-dimensional motion relative to its supporting surface. Physically, a mouse consists of an object held under one of the user's hands, with one or more buttons.

An external mouse requires space, making it nearly impossible to use on an airplane. A mechanical mouse needs to be cleaned regularly or it will get clogged with lint and dust. The cord on most mice can get hung up and drag, making the mouse difficult to use.

### **Light Pens:**

Light pens are easily damaged. They can only be used on some computer screens; they do not work with LCD screens. They usually lack high resolution capability. They can be fatiguing to the hand if overused. They can impair viewing of the computer screen on which they're being used. When used as bar code readers, they have a high error rate.

### **Touch Screen Monitor:**

**Proximity to the Screen:** If you are using a touch-screen monitor you have to be close to the screen in order to touch it. This can be frustrating if you have a big desk and you keep your monitor in a place where you have to reach for it.

**Accuracy:** Unless you are using a stylus pen, a touch-screen monitor may not be all that accurate, depending on the size of the icon as it relates to your finger. Small objects on the screen may be hard to touch if you are using your finger, whereas it is easy to click with a mouse or keyboard.

## V. PROPOSED SYSTEM

It does not uses more space as markers are applied on finger tips and gestures are made in air in order to recognize those gestures by camera. No regular maintenance like mouse. No wiring problems. This is the most serious problem in most of devices as cord on most devices can get hung up and drag, making the devices difficult to use. As it works on color recognition so accuracy is 100% as compared to touch screens another advantage is that no need to stand in front of screens in order to operate, by maintaining a normal distance it would get operated. It cannot get damaged as it does not have any external hardware except camera. GPS to get the information in the form of voice with the help of music player.

## VI. BASIC REQUIREMENTS

**TABLE 1**

<b>Hardware requirements</b>	These are the basic hardware requirements that you used .
1)	<b>Web Camera</b>
2)	<b>Laptop</b>
3)	<b>Projector</b>
4)	<b>Color-Markers:</b> 1)Red 2)Yellow 3)Green 4)Blue
5)	<b>Music Player</b>
<b>Software requirements</b>	The prototype system run on The windows platform and the code is written in Java.
1)	<b>Operating system:</b> Windows XP, vista, 7
2)	<b>IDE:</b> Net bean 7.0 / Eclipse 3.0
3)	<b>DevelopmentTool:</b> Java Development Kit (Jdk 1.5)

## VII. WORKING CONCEPT

The Sixth Sense prototype comprises a pocket projector a mirror and a camera contained in a pendant like, wearable device. Both the projector and the camera are connected to a mobile computing device in the user's pocket. The projector projects visual information enabling surfaces, walls and physical objects around us to be used as interfaces; while the camera recognizes and tracks user's 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 tip of the user's fingers. The movements and arrangements of these fiducially are interpreted into gestures that act as interaction instructions for the projected application interfaces. Sixth Sense supports multi-touch and multi-user interaction.



Fig 2 : Working of six sense device

Something more about the device:-

Now the most basic question is what the device is about and what is behind this device.

It is basically a connection to something greater than what their physical senses are able to perceive. To a layman, it would be something supernatural. Some might just consider it to be a superstition or something psychological. But the invention of sixth sense technology has completely shocked the world. Although it is not widely known as of now but the time is not far when this technology will change our perception of the world.

The device sees what we see but it lets out information that we want to know while viewing the object. It can project information on any surface, be it a wall, table or any other object and uses hand /arm movements to help us interact with the projected information. The device brings us closer to reality and assists us in making right decisions by providing the relevant information, thereby, making the entire world a computer.

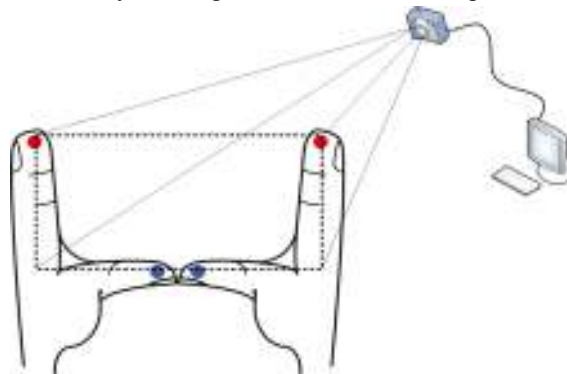


Fig 3:Gesture Representation using color markers

The device has a huge number of applications. Firstly, it is portable and easily to carry as you can wear it in your neck. The drawing application lets user draw on any surface by observing the movement of index finger. Mapping

can also be done anywhere with the features of zooming in or zooming out. The camera also helps user to take pictures of the scene he is viewing and later he can arrange them on any surface. That's not it , The device can also tell you arrival, departure or delay time of your air plane on your tickets. For book lovers it is nothing less than a blessing. Open any book and you will find the Amazon ratings of the book. To add to it, pick any page and the device gives additional information on the text, comments and lot more add on features. While picking up any good at the grocery store, the user can get to know whether the product is ecofriendly or not. To know the time, all one has to do is to just gesture drawing circle on the wrist and there appears a wrist watch. The device serves the purpose of a computer plus saves time spent on searching information.

GPS will access the internet with the help of Google maps for the detection of position of user .The hand gesture play the sound system which is present in the music player. Gesture is used to play and stop the sound system.

### **VIII. APPLICATIONS**

The general application of six sense technology is given below-

1. Make a call.
2. Call up a map.
3. Check the time.
4. Create multimedia reading experience.
5. Zooming features.
6. Take picture.
7. To play games.

### **IX. ADVANTAGES**

- Six sense technologies is an open source.
- Six sense technologies is a user friendly device.
- Six sense technology is not that expensive
- Six sense technologies with GPS detect the direction as well as location.
- Six sense technologies is portable.

### **X. FUTURE SCOPE**

- Home appliances.
- Virtually play musical instrument.
- In educational as well as professional field.

### **XI. CONCLUSION**

Sixth Sense is a research and development project which performs the basic operations of the computer by detecting the human generated hand gestures with the color markers on their fingertips without using external equipment's.

This system could further be used effectively and independently for different purpose such as follows:-

- Control of consumer electronics
- Interaction with visualization systems
- Control of mechanical systems
- Computer games
- Security Systems

- Television

Finally we conclude that, this project has given us tremendous exposure to the industry working standards, which will definitely be useful for our future.

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