The Sixth Sense Technology

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ABSTRACT
IEEE has for long been supporting new technologies and has been introducing them to the students. It has been providing initiatives to bring the students more closer to the technical world with the help of researches been conducted in various technical fields.
In this paper we worked on a new type of technology which is going to be soon launched in the market. Its name is the sixth sense technology a great initiative by an Indian on international grounds.

1. INTRODUCTION
You all may be wondering what’s with the sixth sense. The answer is very simple the Sixth Sense is a wearable gestural interface device developed by Pranav Mistry PhD student in the Fluid Interfaces Group at the MIT Media Lab. 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. When we encounter something, someone or some place, we use our five natural senses to perceive information about it; that information helps us make decisions and chose the right actions to take. But arguably the most useful information that can help us make the right decision is not naturally perceivable with our five senses, namely 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 [1, 2].

1.1 CONSTRUCTION AND WORKINGS
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 fiducials) 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.[2]
Something more about the device:-

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

All of us are aware of the five basic senses – seeing, feeling, smelling, tasting and hearing. But there is also another sense called the sixth sense. 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.

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. Some of the more practical uses are reading a newspaper. Imagine reading a newspaper and viewing videos instead of the photos in the paper. Or live sports updates while reading the newspaper. The device can also tell you arrival, departure or delay time of your airplane 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 eco friendly 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. Currently the prototype of the device costs around $350 to build. Still more work is being done on the device and when fully developed, it will definitely revolutionize the world. [2]

2. APPLICATIONS

The Sixth Sense prototype implements several applications that demonstrate the usefulness, viability and flexibility of the system. The map application lets the user navigate a map displayed on a nearby surface using hand gestures, similar to gestures supported by Multi-Touch based systems, letting the user zoom in, zoom out or pan using intuitive hand movements. The drawing application lets the user draw on any surface by tracking the fingertip movements of the user’s index finger. Sixth Sense also recognizes user’s freehand gestures (postures). For example, the Sixth Sense system implements a gestural camera that takes photos of the scene the user is looking at by detecting the ‘framing’ gesture. The user can stop by any surface or wall and flick through the photos he/she has taken. Sixth Sense also lets the user draw icons or Symbols in the air using the movement of the index finger and recognizes those symbols as interaction instructions. For example, drawing a magnifying glass symbol takes the user to the map application or drawing an ‘@’ symbol lets the user check his mail. The Sixth Sense system also augments physical objects the user is interacting with by projecting more information about these objects projected on them. For
example, a newspaper can show live video news or dynamic information can be provided on a regular piece of paper. The gesture of drawing a circle on the user’s wrist projects an analog watch.

3. THE INVENTOR
Pranav Mistry, 28 year old, of Indian origin is the mastermind behind the sixth sense technology. He invented ‘Sixth Sense / WUW (Wear UR World)’ which is a wearable gestural, user friendly interface which links the physical world around us with digital information and uses hand gestures to interact with them. He is a PhD student at MIT and he won the ‘Invention of the Year 2009’ - by Popular Science.

CONCLUSION AND FUTURE OF THE DEVICE
The device will soon be up for sale and will be available to the common public the device will cost around 350$ without the custom made PC. After sale the technology will create a revolution it will not only make our world digital but also make it simple. It will remove the tedious task of carrying our laptops our any other devices which are very heavy all we have to do is just wear the device which is a pendant shaped. Its light and easy to carry and easy access to any information. The inventor is now trying to make out a 3-D interface with the help of this device. And also defense companies are ready to buy it for defense purposes. The device is been modified to detect noise frequency so that when the device clip is attached to a paper it detect your finger place by a simple touch and the vibration of sound created on the paper.

REFERENCES
[1]. www.wikipedia.org
[2]. www.pranavmistry@mit.com