

Modern's Life Six Senses: A Revolution

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Abstract—Sixth Sense Technology includes a variety of technological tools. A cell phone doubles as a computer and is linked to the internet; it also features a mini-projector and a camera. Also, hand movements can be controlled by Sixth Sense technology. It is cutting-edge tech that relies on computers and sensors. The camera can take pictures of the environment around a person, and the micro-projector can show the data on any surface, including the person's hand. Additionally, one can use finger motions to retrieve or manipulate the data. The little gadget that can do a lot of things, is easy to carry around, and can be worn around the neck or the hand makes it convenient. By tracking the user's finger or hand movements, the drawing software enables them to sketch on any surface. The ability to zoom in and out makes mapping a breeze no matter where you are. This paper explains how six sense technology works and goes over its primary parts. It also delves into the outdated hardware of this technology and the problems it had.

I. INTRODUCTION

We have evolved millions of years to sense the world around us. But one cannot access the most useful information with his five senses i.e. the data, information and knowledge. Mankind has accumulated information about everything and which is now increasingly available online. Today, computers help us to easily connect with digital world but there is no link between our digital devices and our interactions with the physical world. Information is limited traditionally on paper or digitally on a screen. It is only the Sixth Sense which bridges this gap and makes intangible digital information into the tangible, and allows interacting with this digital information through natural hand gestures. Sixth Sense Technology is the newest developed technique in technical arena. With the help of "Sixth Sense Technology" our computers will be able to sense the different things of surroundings.

One great part of the device is its ability to scan objects or even people and project out information belonging them exactly what you are looking at.

II(a) What is SixthSense?

Sixth Sense in scientific (or non-scientific) terms is defined as Extra Sensory Perception or in short ESP. It does not concern with the information gained @through five senses or one's own experience. It is a physical sensor i.e. camera which makes needed information available for decision-making with the help of projector, mirror and internet enabled pocket device. The whole equipment effectively gives users a sixth sense.

II(b) Earlier Sixth Sense Prototype

II. ORIGIN

It was originated by Pranav Mistry who is a PhD student in the Fluid Interfaces Group at the MIT Media Lab. He says that the movies "Robocop" and "Minority Report" inspired him to create his view of a world where computers and other digital devices enhance people's enjoyment of the physical world rather than dominating them.

Today, one use digital devices (*computers, mobile phones, tablets, etc.*) to go into the internet and get information that he needs. But Sixth Sense technology, one is able to work on a device which is quite smaller than current cell phones and probably eventually as small as a button on our shirts to access the internet in order to interact with the world.



Figure 1 Earlier Device

Maes' MIT group of seven graduate students was thinking about how a person can access information without having to do something like take out a phone. They initially produced a wristband that could read a Radio Frequency Identification tag to know something e.g. which book a user is holding in a store. They also developed a ring that used infrared to communicate by beacon to supermarket smart shelves to give you information about products.

II(C) Recent Prototype

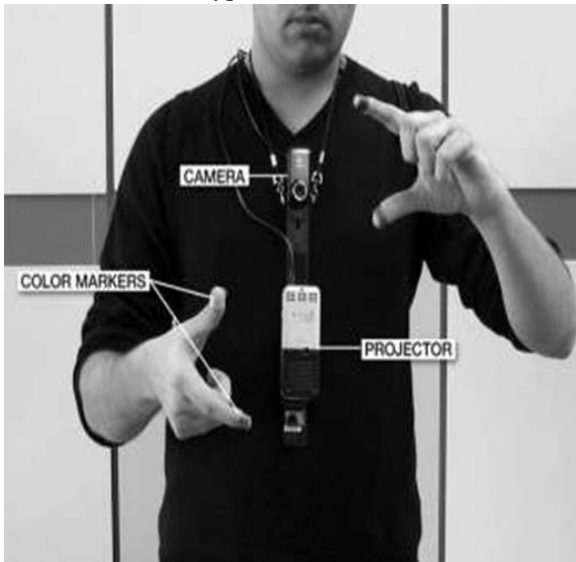


Figure 2: Present Device

The hardware components are integrated in a pendant-like mobile wearable device. For processing of information and projecting it properly, it also needs a mobile computing device in user's pocket. So, the prototype was built from an ordinary webcam and a battery-powered 3M projector, with an attached mirror — all connected to an internet-enabled mobile phone.

II. WORKING OF SIXTH SENSE TECHNOLOGY

Six Sense Technology works in a very simple way. It has the following components:

III(a) Camera

It is a webcam that captures and recognizes an object in view and tracks the user's hand gestures using computer-vision based techniques. It sends the data to the smart phone.

III(b) Projector

It is the projector which opens up interaction and sharing. The project itself contains a battery inside, with 3 hours of battery life. The projector projects visual information enabling surfaces, walls and physical objects around us to be *used as interfaces*.

III(c) Mirror

The usage of the mirror is significant as the projector dangles pointing downwards from the neck. One can set reflection of projector anywhere with the help of mirror.

III(d) Mobile Component



Figure 3: Smartphone

It is just like a mobile device (smart phone) in our pockets that can transmit and receive voice and data anywhere and to anyone via the internet. Smartphone runs the Sixth Sense software, and handles the connection of the internet service. So, a web-enabled smart phone in the user's pocket processes the video data and with help of other software searches the web

and interprets the hand gestures.

III(e) Color Markers

It is arranged at the tip of the user's fingers. The Marking the user's fingers with different colors like red, yellow, green, and blue helps the webcam to recognize gestures. The movements and arrangements of these markers are processed and interpreted into gestures that act as interaction instructions for the projected application.

III(f) Working

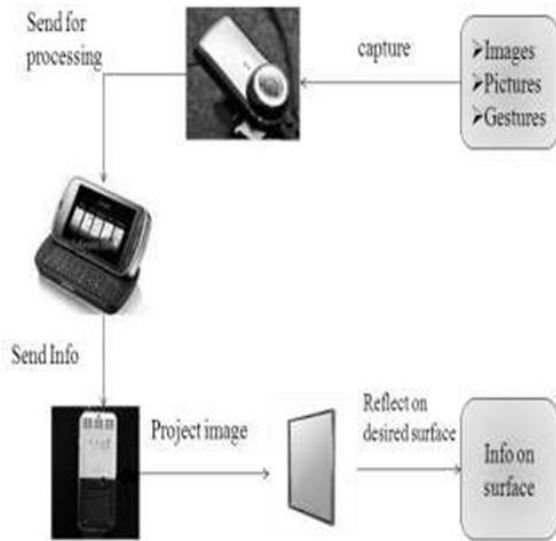


Figure 4: Working

The entire hardware apparatus is look like a pendant-shaped wearable device. Basically, the camera recognizes individuals, images, pictures, gestures that one makes with their hands and

the projector projects that information on whatever type of surface is present in front of the person with the help of mirror. It uses colored caps on his fingers so that it becomes simpler for the software to differentiate between the fingers, demanding various applications.

III. CONCLUSION

The technology is mainly based on hand gesture recognition, image capturing, processing, and manipulation, etc. The map application helps the user to 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

REFERENCES

- [1] www.blendernation.com/sixth-sense-technology.
- [2] <http://boingboing.net/2009/11/12/sixth-sense-technolo.html>
- [3] <http://gizmodo.com/5167790/sixth-sense-technology-may-change-how-we-lookat-the-world-forever>
- [4] <http://theviewspaper.net/sixth-sense-technology-will-revolutionize-the-world/>
- [5] <http://lucasrichter.wordpress.com/2009/03/13/pattie-maes-sixth-sensetechnology-whats-stopping-this/>