Survey on Wearable, Gestural Interface Using Sixth Sense Technology and Its Application

Ms.D. Sandhiya[1], Dr.S. Sridhar[2]

[1]Department Of Computer Applications (M.C.A), S.A Engineering College, Chennai.
sandhiyasan1102@gmail.Com
[2]Department of Computer Applications (M.C.A), Professor, S.A Engineering College, Chennai.
sridhar@saec.ac.in

Abstract:

Over the centuries, humans have understood the whole world around them by their five sensing methods, looking, listening, smelling, touching, and tasting. No matter what, information on any object that comes across our way is become aware with the help of these senses before making an appropriate decision. But now things have changed, everything about the most useful information available on the internet, creating our sixth intellect, have a decision data on anything, and sense should be consulted online. This information comes with the smartphone, tablets, laptops etc. This gives a circular-clock connection-less link to the digital world. Information on ordinary occasions is available on paper or digitally on a screen. Sixth sense is also said to be a neck worn gestural interface device. This technology helps the user connect with the internet continuously. The aim of the sixth sense is to allow computer assistance in making the right decisions by designing information in various forms. We took a clear gap between the virtual world and the real world, but the sixth sense view is aimed at filling the vacuum. The sixth sense is like breathing a new life in the virtual reality world. Sixth sense, this technology can act as a wearable device and process for traditional feelings (sight, smell, touch, listen and taste) for digital information. The interval bridges between the sixth sense technologies are the physical world and data world. This idea is moved to connect the digital world with the real world.

Keywords

Sixth sense technology, gestural interface, components, applications, augment reality.

1. Introduction

Sixth sense technology takes digital information from the intangible world to the tangible world. Interaction with the world becomes a 'never before experienced affair' with the sixth sense technology. One of the biggest implications of this technology is the ability to read all the information about a man and an object, and all the available information about it. The most important thing is that sixth sense is wearable gestural interface, which helps with easy hand gestures with natural hand gestures. We have 5 feelings that have eyes, ears, nose, tongue and skin, i.e., ears for listening, touch for tasting and skin for touching. This technology will give people freedom to use the computer anywhere and everywhere, and the whole world around the computer. We will not only be able to interact with thing on a whole new level but also with people.

2. Sixth sense technology

Engineering is the beginning of a new era of new milestones technology. As in science fiction images appearing on the computer screen walls, commands are given by gestures, smart digital environment which speak to as to do our work and these all will be possible very soon. If you imagine it, the sixth sense technology makes it possible. Isn't it futuristic? Now it's time for sci-fi movie directors to think ahead because the technology shown in their fiction movies soon will become household stuff. Some years ago, it was supernaturally or cunningly imagined. But now it's possible. Thanks to a famous man named Pranav Mistry who introduced this future technology to mankind.

2.1. What is sixth sense?

Sixth sense improves the world around us with digital information and helps us use natural hand gestures to communicate with that information. It is based on the idea of growing facts and its feelings are well implemented. The sixth sense technology has integrated real world objects with the digital world. The wonderful sixth sense technology is a mixture of many graceful technologies. This thing that makes it amazing is the amazing integration of all of those technologies and gives it a small and economical product. It connects technologies such as hand image capturing, processing and handling. It's to place the digital world in the real world.

2.2. Why choose sixth sense technology?

Humans take decision after purchasing inputs. But the information we collect is not enough to make the right decisions. But the information available to make a good decision is often available on the internet. Although the information is collected by connecting devices like computers and mobiles, they are controlled by the screen and do not have a direct connection to a stable natural world and an incredible digital world. This sixth sense technology gives us the freedom to communicate with the digital world with hand gestures. This technology has a wide range of artificial intelligence industry. This method can help in the packages of interacting with humans.

2.3. How does sixth sense work?

The sixth sense technology uses various technologies such as gesture recognition and image processing. At present commercial production has not started, but the prototype is made. The sixth sense model is made using the most common and easily available equipment like a pocket projector, a mirror, mobile elements, color markers and a camera.
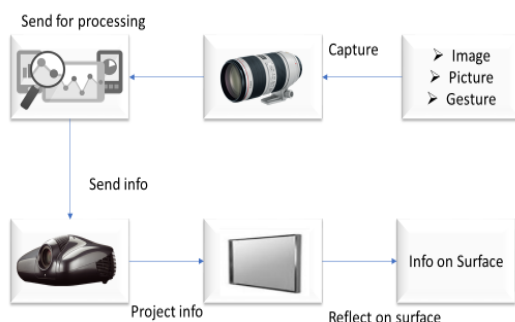

Figure 1. Working of sixth sense technology

2.4. Evaluation of sixth sense technology

Steve Mann is considered the father of sixth sense technology by a wearable system in 1990. He implemented the sixth sense technology as a neck worn projector using the camera system. He was a media lab student at that time. Then his work was carried forward by Pranav Mistry, an Indian research assistant in MIT media lab. He came up with this new technology with amazing new applications. The sixth sense technology was developed at MIT's media lab, called wear urn world (WuW). In February 2010, the inventors were patented by the name wear ur world (WuW).

Rather than waiting for that time to come, I want people to make their own system, why not? " Mistry says in an article in Rediff business". People can do their own hardware and he gave instruction regarding the device to them and how to make it and also provide them with the mainstream software. They provide basic core software layers. They can create their own applications; they can change the base level and do anything". So, expect the software to be open source and the broader market for applications.

2.5. Prototypes

(i) Earliest prototype

The MIT's seven graduate students began to think of a concept that would create an integral part of the surrounding world's people and communicate information without taking a phone in their pockets. Initially, a wristband was created to study a ride (radio frequency identification detection) tag to investigate a user-owned book at a stand. Also, a ring that uses infrared rays provided to smart shelves in a supermarket to provide information about the products.

Depending on the planned criterion on the system, a red or green light ring may indicate whether the product is organic or not. However, getting the phone to access the information is a problem. An opinion was created to access and format information directly from the internet. In the initial phase, a large projector was used, which planned data on a helmet, and became more difficult during the conversation with a friend, describing the friend's face data.

Figure 2. earliest prototype

(ii) Recent prototype

The latest prototype has a small projector, which looks like a pendant model wearing around the neck. The prototype features hardware components, such as a pocket projector, camera and a mirror attached to creating a flexible mobile device such as a stem. This technology is a combination of computer and cell phone. This device hangs around the neck and is planned by the micro-projector connected to the device.

In short, you move your fingers to become a moving machine of your own and walk like the keyboard. Pranav Mistry created a model with a simple webcam, connected glass and a battery-driven 3m projector - all connected to the internet-enabled mobile phone.

Figure 3. recent prototypes

3. Elements

This wearable gesture interface is the core components of the sixth sense technology device,

- Cams
- Color marker
- Mobile components
- Projectors
- Glasses

Cameras

These components are in the header of the device. The function of this camera is similar to a human eye, providing the same digital information.

Mobile component

The sixth sense system has a smart phone running from the internet, which implements data from the camera. Smartphone data and voice information is used to send and receive anyone from anywhere and from mobile web. The software runs on a smart phone that supports this technology and handles data connections.

Projector

Smartphone data description and this data surface are mainly planned in the walls, body or hands. A battery is found on a 3-hour battery life projector. Visual information is planned for surfaces and other physical objects that are used as interfaces by projectors. This program is made up of a small led projector. This mirror draws the picture through the downward facing projector. When you touch an object, the information associated with it will appear which will appear to be part of the information.

Glass

The projector uses the mirrors used to throw down the shoulder and reflect the image to the desired surface. This step will release digital information from its borders and send it to the physical world.

Color markers

Red, green, blue and yellow color tips help identify gestures in hand. The various motions and configuration arrangements made by this code are gestures that act as an instruction for the application interfaces.

4. Applications

Applications of the sixth sense technology are very wide. Already mentioned, devices with this technology divide the existing gap by bringing digital information to the physical world. The sixth introduction prototype device has shown its technology, flexibility and reliability of this technology. The only definition for this technology is human imagination. Some of the practical applications of this technology are listed below:

i) Take pictures

Figure 4. capturing image

By creating masks with hands, the user can take pictures of different places at a minimum. After taking photos, users can review images by displaying on any surface, then sorting, arranging and resizing images.

ii) Seeing map

Figure 5. viewing map.

Navigation using maps is becoming more common these days. From millions of goals to millions of goals, this app provides an accurate way for your path. In any case, the map app allows the user to view a specific location and guide it by designing the map on the surface. With the help of the fingers, the thumb and index fingers, especially the selected area, can be enlarged or pan.

iii) Drawing application

Figure 6. draw pictures

This app allows the user to draw any surface and the maps finger tips are specifically monitored mouse pointer movements. These images can easily be saved and stored on any other surface. With the help of gestures in hand, the user can skip through the available images and drawings.

iv) Make calls

The sixth sense technology support device makes it easy to call the job. It can also design a keyboard on your palms or use virtual keyboard to make calls that protect privacy.

This technique is implemented in other technologies such as skin. This application helps people with a certain number of easy-to-call disabilities.

Figure 7. making call

v) Interaction with physical objects

Sixth sense technology brings information about different physical objects in the shortest time and best format. By drawing a circle on the wrist, an analog clock shows Similarly, when the magazines study, it has a live video message, or a different magazine, with the ability to deliver dynamic information, in the place of a written article.

International Journal of Research

e-ISSN: 2348-6848 & p-ISSN 2348-795X Vol-5, Special Issue-10
**International Conference on Innovations in Information and
Communication Technology**
Held on 9th and 10th March 2018 organized by **The Department of
Information Technology,Meenakshi Sundararajan Engineering College
Kodambakkam,Chennai, India**

Figure 8. physical objects

vi)   Get information

Devices driven by this technology can provide information on any subject of user interaction. For example, by keeping a book, this device offers reviews and other related information about amazon or Google's rankings and books.

Figure 9. getting details

Furthermore, using this technology does not delay airport searches. The device recognizes boarding pass and informs the flight attendant, if not over time.

5. Existing system

Sixth sense a mini projector is connected to a camera and a cell phone, which operates at the club and our connection to the cloud, all the information stored on the internet. Hardware components are attached to a post such as a mobile wearable device. The projector and camera are connected to the mobile computing device in the application pocket.

Software: The software program enables video stream data captured by the camera; the sixth sense software is open source. Because it's a small set of packages, user interfaces or users do not have much advanced programs. Inside the device will be the most difficult and secure coding to ensure the security of the software. A sixth sense device will be interested in knowing the new language of the index.

Hardware: In order to control the sixth sense, it requires some advance hardware as it appears. Some of the public presentations provide the control panel with some control devices, including color markers, camera and projectors. They should be small and easy control. However, the hardware integration of the sixth-sense technology is much more innovative since the ability to create a camera and pen like daily supplies.

- Language: java, c#, C++, OpenCV, JavaCV
- Image processing software: mat lab.

5.1. Disadvantage
o The product is not yet released in the market
o Health issues
o Many phones cannot access external cameras in real time
o No. Of hardware component in this device, any time is can fail.

6. Proposed system

Device like virtual reality can use so that only the person who wish to see information can use it. This device will also give the same effect of projector. This implies the elimination of projector which is used to wear for projection. All the wires or cables which are connected to the projector can be connected to virtual reality device. This ensures the privacy of information. Microphone is used for recording audio and video.

In this device we can only process the image; I'm going to implement these devices as to record audio and video.

Sharing: sharing information among two sixth sense devices. Method of encrypted authentication can be implemented to sharing data or information.

User friendly: while the device is an option source we can implement as user friendly device using software and hardware.

To develop an application based on sixth sense technology one can use:

1) Language: c, c#, JavaScript, php, sql any language

2) Image processing software: mat lab, imageJ, abode photoshop

3) Powerful electronic gazette: WuW v0.1 beta, hand gloves.

6.1. Advantages

- It is open sources
- Portable
- Cost effective
- Support multi user and multi touch
- Data can be access directly from the machine
- Connection between the world and the information
- Mind map from anywhere.
- Viewing and capturing picture.

7. Methodology

In this sixth sense technology is the most important thing in image processing. And this is used to provide the analysis and manipulation of a digitized image, especially in order to improve its quality. The two methods used for image processing are analog and digital image processing. Image processing's analog or visual techniques can be used for hard copies such as film clips and photos. Image researchers use different basics to explore when using these visual techniques.

The camera captures the objects and the user tracks hand gestures. Red, blue, green and yellow color markers are used in the user's fingertips to help identify hand gestures. The motions and arrangements of these colored markers are meant to be used as a teaching for a planned use. The mobile computing device explains gestures with the help of color identifiers to search the internet. Information received from the mobile computing device or image may be planned on any surface, and the mirror reflects any surface or wall.

8. Future enhancement

This technology will be new devices, new technologies and more. The sixth sense device is completely different from computers, which helps to calculate an environment. All security threats discussed in the previous section must be overcome; many new technologies have died due to security complications and threats. Remove the color identifiers in the mobile marketing device and integrate the camera and projector. This technique is implemented in various areas such as gamering, education system. Device can have a 3d gesture

tracking. Smart phones in this world, smart phones are available at affordable prices at a higher price

9. Conclusion

Pranav Mistry invented a shocking technology, the sixth sense. This mixture of devices and software create a reality combined into the world of digital world. The positive results of the sixth sense technology can be easily identified during the trip. Sixth sense device make use for disable person.

10. References

[i] Mandar Ghate, "The Sixth Sense Technology", department of computers, Padmabhushan vasantdada patil pratishans college of engineering, Mumbai, mandarghate4@gmail.om

[ii] "Sixth Sense Technology and Its New Application", *International Journal of Emerging Research in Management and Technology,* Sins: 227-9359

[iii] "A Review Paper on Sixth Sense Technology", *International Journal of Current Engineering and Technology*, e-sins: 2277-4106, p-sins: 2347-5161, http://impressco.com/category/ijeet

[iv] "Sixth Sense – A Wearable Gestural Interface", *International Journal of Advanced Research in Computer and Communication Engineering*, IJARCCE

[v] "Sixth Sense in State of Radical Emergence", *International Journal of Information and Computation Technology*, ISSN 0974-2239, http://www.irphouse.com/ijich.htm

[vi] http://pranavmistry.com/project/sixthsense/

[vii] "Sixth Sense Technology" http://www.slideshare.net/

[viii] http://en.wikipedia.org/wiki/sixthsense

[ix] Pranav Mistry: the thrilling potential of sixth sense technology | TED talk - video

[x] https://engineersgarage.com/articles/sixth-sense-technology

[xi] www.google.com/image-sixthsense - image