

SIXTH SENSE TECHNOLOGY

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ABSTRACT

Sixth Sense Technology has emerged as a field of study that makes an effective interaction between digital world and human without any physical interface .Sixth Sense Technology is the application of Artificial Intelligence, is the study of human intelligence such that it can be replicated artificially. Sixth Sense Technology is a mini projector coupled with a camera and a cell phone which acts as the computer and connected to the cloud, all the information stored on the web. Sixth Sense can also obey hand gestures .The camera recognises object around a person instantly, with the projector overlying the information on any surface including the object itself or hand .It also can access or manipulate the information using fingers. Make a call by extend hand on front of the projector and numbers will appear to click ,know the time by draw a circle on wrist and watch will appear and take a photo by just make a square with fingers ,highlighting what want to frame ,and the system will make the photo which can later organise with the others using own hands over the air and the device has a huge number of applications ,it is portable and easily to carry as can wear it in neck. The drawing application lets the user to draw pictures by movement of fingers. Mapping can also be done any where with the zooming in\out .Some more practical uses of reading a news paper ,reading a news paper and viewing videos instead of photos in the paper ,or live sports updates while reading the news paper. The device can also tell arrival, departure or delay on tickets for book lovers it is nothing less than a blessing. Open any book and find the Amazon rating of the book add to it pick any page and device gives the additional information on the text ,comments .Without use of key board mouse we can access the data.

Key words: Sixth Sense Technology, effective interaction, digital world, mini projector.

Introduction

The miniaturization of computing devices allows us to carry computers in our pockets, keeping continually connected to the digital world. There is no link between digital devices and our interfaces with physical world. Information is confirmed traditionally on paper or digitally on a screen. Sixth sense bridges this gap, brings intangible world digital information out into tangible world and allowing us to interact with this information via natural hand gestures.



History of Sixth Sense Technology:

Sixth sense originated as a variety of wearable technologies including head worn, neck worn and wrist worn, etc. Including the neck worn projector and the

camera system developed by media lab student Steeve mann in 1990, the first prototype of the sixth sense technology proposed by Steeve mann was actually bigger than what it looks like today, Initially a wrist band was developed that would read a RFID(Radio Frequency Identification) tag to enquire about the book held by a user in a store and also a ring that made use of infra red rays that communicated by beacon to the smart shelves in a super market to provide the information about that products .Depending on the criterion that is programmed on the system ,a red or green glow occurs on the ring to indicate whether the product is organic or not. Still, the problem exists of taking out the phone to access information directly from internet and projecting it, And later this project was carried out by Pranav Mistry. Pranav Mistry came up in 2009 with an implementation of this prototype which is portable and consists of tiny projector, camera, coloured marker.



Components of sixth sense technology:

The hardware components are coupled in a pendant like mobile wearable device are:

1. Camera
2. Projector
3. Mirror
4. Colored Markers
5. Mobile Component

1. CAMERA:

A web camera captures and recognises the objects in its view and tracks the users hand gestures using computer vision based technologies. The camera in sense act as a digital eye seeing what the users see. It also tracks the movements of thumbs and index fingers of both of the users hands.

2. PROJECTOR:

The projector projects visual information enabling surfaces, walls and the physical objects around us to be used as inter face. A Projector itself contains a battery inside with 3hrs of battery life. This can be overcome by placing a photovoltaic cell used in calculators in that battery that it can recharge it self.

3. MIRROR:

The usage of the mirror as the projector hangs from neck pointing downwards and reflects the image to desired surfaces. This step finally frees the digital information from its confines and places it to the physical world.

4. COLORED MARKERS:

The coloured markers are red, green, blue, yellow are placed at the tips of fingers which helps the camera to recognise the hand gestures. The various movements and structural arrangements made by these markers are interpreted as gestures that subsequently act as an instruction for application interfaces that are projected.

5. MOBILE COMPONENT:

The mobile component consists of smart phone which is wifi enabled or internet enabled smart phone, and receives information from camera and searches the web and interprets the hand gestures and send the information to projector.

WORKING

- The hardware that makes sixth sense work is a pendant like mobile wearable interface.
- It has camera, mirror, and a projector and is connected wirelessly to internet smart phone that can fit into users pocket
- The camera recognises the individuals, images, pictures, gestures one make with their hands
- Information is send to smart phone for processing
- The down ward facing projector projects the
- Mirror reflects image on to surface .The digital information is freed from it confines and placed in physical world.

APPLICATIONS

The sixth sense prototype implements several applications that demonstrate the usefulness, viability, flexibility of the system. The sixth sense device has a huge no of application

TAKING PICTURES :

With help of framing gestures user can take pictures with help of high hands, He can take maximum no of pictures in minimum time.



<p>CALL A MAP:</p> <p>Navigation has become more common these days. User can display the map on any surface and navigate through it. User can zoom with help of fingers.</p>	
<p>DRAWING APPLICATION:</p> <p>This application lets user to draw on any surface .This will be a fun for children to draw pictures on walls with help of finger tips.</p>	
<p>MAKING CALLS:</p> <p>The sixth sense technology supporting device makes calling an easier job. This will project a virtual key pad on your palm to make calls thus protecting privacy.</p>	
<p>CHECK THE TIME:</p> <p>We can check time by drawing a circle on wrist this display an analogue watch.</p>	
<p>GET BOOK INFORMATION:</p> <p>This technology helps you to recognise which book do you want to read. This system can project Amazon or Google ratings of that book.</p>	
<p>INTERACTIVE NEWSPAPER:</p> <p>This technology augments physical objects the user is interacting with by projecting more information about these objects. Even a news paper can produce dynamic information and display live news instead of normal article.</p>	
<p>PLAYING GAMES:</p> <p>This technology augments physical objects the user is interacting with projecting the information on any surface. Even on a piece of paper we can play games.</p>	

ADVANTAGES

- It uses hand gestures to interact with digital information.
- It is portable and easy to carry.
- It supports multi-touch and multi-user interaction.
- The device could be used by any one without even basic knowledge of keyboard and mouse



FUTURE ENCHANCEMENTS:

- To incorporate camera and projector inside mobile computing device.
- To have 3D gesture tracking.
- To make sixth sense work as fifth sense for disabled person

CONCLUSION

Digital information nowadays confined to limits of computer screen or paper. These sixth sense technology is taking the natural ways of data display into new phase. It takes out the digital information from intangible world to the tangible world. This technology is all set to bring that transparent interface to access information about any thing and every thing around us.

Sixth sense technology is definitely the invention of era and 'Get ready to be a part of magical world'

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