

Image Grabbing By Using Sixth Sense Technology

Kadnar Snehal S.
Sinhgad Institute of Technology

Deshmukh Hemangi K.
Sinhgad Institute of Technology

Bhosale Bhagyashri P.
Sinhgad Institute of Technology

Mr. Gadakh Prashant J.
Computer Science & Engineering Department
Pune University
Maharashtra, India

Prof. Kunal R. Shah
Computer Science & Engineering Department
Pune University
Maharashtra, India

Abstract: -In image grabbing by using six sense technologies we convert the real world into digital world. The Gesture Computing is a best technology that allows hand movement and facial expressions as input controls. Many devices are used now-a-days for capturing images and storing in their mass storage devices provided within them like digital camera with memory cards or main memory, mobile phones with inbuilt memory and memory cards, etc. We focus on capture the images and storing them by using gesture computing method in which acts as a processing device for this technology. The goal of gesture computing is to make it possible for the user to interact with their computer interaction without the “middleman” of controls that means keyboard, mouse, touchpad, etc. and to make the computer as “human” as possible. Gesture computing is called “perceptual computing”, a style of personal computing experience that gives the devices we use every day the ability to interpret what we are doing via human-like senses. A swipe of a finger is easier to do than using your fingers and hands on a keyboard or mouse when operating a computer device. The gesture computing devices are already developed but we focus on bridging the crevice between the two different worlds i.e. Physical and Digital world using sixth sense technology. 'Sixth Sense' is a gestural interface that augments the physical world around us with digital world information and lets us use natural hand gestures to interact with that information.

Keywords:-Gesture Computing, Sixth Sense Technology, Wearable gestural interface, Perceptual Computing, middleman.

1. INTRODUCTION

In image grabbing the Gesture Computing is a technology which is aimed at interpreting human gestures with the help of mathematical algorithms that means real world to digital world.[1] Gesture computing technique basically focuses on the emotion computing from the hand

gesture computing. Gesture computing technique is useful to humans interact with computers in a more directly without using any external interfacing devices. It can provide better alternative to text user interfaces and graphical user interface which requires the need of a keyboard or mouse to interact with the computer system. An interface which solely depends on the gestures requires precise hand pose tracking. Wired Mouse or wireless mouse is one of the main components that are used for human interaction in physical world with the computer systems that is digital world.[4] Less amount of other electronic devices i.e. Digital Cameras, Mobile Phones, etc. are used in today's technical world for capturing images. More the features and characteristics of the camera, more successful are the device in today's market as today's generation want everything different from others which distinguishes them from the crowd in general. In earlier days, lesser resolution cameras with film inside were used which required the film to be developed which take some time.[6] Then the technology get advancement and digital camera took birth. So we can easily use digital camera Later with the passage of time, the features of the digital camera get modified and addition of different features took place like face computing, smile computing, etc. In parallel with the advancement of digital camera, mobile phones too took the same path and camera resolution along with features like touch screen, ability to connect to the internet.[11]

The camera acts as a digital eye in digital world which will capture the objects in its view from the physical world and the gestures made by user. Camera will remain connected with the laptop or smart phone and continuously sends the live video to the device in connection and by doing so, connecting the user to the digital world. Color caps or markers are fixed at the user's fingers to distinguish

the fingers from other objects in view. Different color caps will help to identify the gesture made by the user which will be processed.[7] The movements and arrangements of markers on the fingers get interpreted in the form of gestures which is the input for the gesture computing process and act as instructions for enabling the process of taking the desired pictures and saving them in memory. Using projector as another device we can provide more intuitiveness to the user as projector can be used to project the captured image from real world on any desired surface. Videos can also be viewed if the processing device i.e. laptop or smart phone is connected to the internet. Input from the camera will be send for processing and in process if it is defined, can use internet to view live news or any other data depending on the user needs and defined processes. Examples of other applications using Sixth Sense Technology include drawing scenery on any wall, checking current time, getting information about persons standing in view of camera.[11]

a. What Is Sixth Sense Technology?

Basically, Sixth Sense is a mini-projector coupled with a camera and a cellphone. Which acts as the computer and your connection to the Cloud that comes under cloud computing, all the information stored on the web? Sixth Sense can also utilize hand gestures.

b. Problem Definition

Main aim of our proposed system is to build the software system depend on real time video processing. Here camera will pointed to the user activity and by processing camera view system will identify the action and process further.

2. PROPOSED METHOD

The aim of the Six Sense technology is to capture the gestures made by the user from real world and save them in memory automatically without using any device manually by hand. For this purpose we used three components of Sixth Sense Technology i.e. a web camera which takes the picture in view, four colored caps that user wore at the finger tips used to recognize the gesture made by fingers, and a laptop or smart phone installed with software that acts as a processing device and storing device for the pictures.[12] The camera captures the image of the object in view and tracks the user's hand gesture. There is color markers placed at the tip of user's finger. Marking the user's fingers with red, yellow green and blue colored tape helps the webcam to recognize the hand gestures.[13] The movements and arrangement of these markers that is attached with finger are interpreted into gestures that act as an interaction instruction for the projected application interfaces. The smart phone searches the web and interprets

the hand gestures with help of the colored markers placed at the finger tips.[12] The information that is interpreted through the smart phone can be projected into any surface. The mirror reflects the image on to a particular surface. The following figures show the sample of each component used by us.



Figure 1: Image Capture and Recognition System

3. MODE OF OPERATION

In the next stage the user will choose their desired mode of operation.[1]

3.1 Capturing Gesture

Once the mode of operation is selected the actual working of the system begins. The web camera is initialized and frames are captured. The gestures of the user wearing the colour tags are sent for processing.[3]

3.2gesture Processing And Output

The captured frames which are sent for processing are now processed according to their functionality and the output is displayed on the monitor. [1]. As it is a real time video processing application, the time required capturing a frame from the video, to process it & then to show the desired output is negligible.[2]

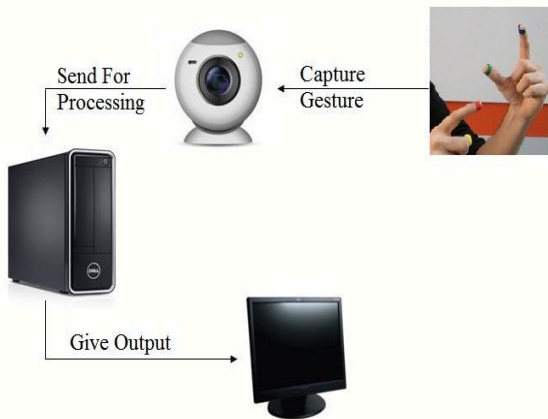


Figure 2: Working of the system

4. CONCLUSION

Thus we conclude that the implementation of image grabbing by gesture computing using Six Sense Technology is successfully verified. Hidden Markova models, time delay neural networks, multi-layer perceptron and template matching have been widely used for gesture computing technology. Fuzzy logic has not been widely used in the development of gesture computing systems. This approach has a huge amount of potential to bring a drastic change in digital world by making it more human. The optimization can be achieved with the help of better hardware specifications.

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