

VIRTUAL MOUSE

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Abstract

Touchpad is the main problem in the current technology and it is not comfortable and convenient. For example, in wired mouse there is a problem in extension limit. In wireless mouse software is needed such as Bluetooth Dongle software attached. so, to avoid all these problems in this system has no such disadvantages like hardware and software problems it only depends on hand gesture recognition. In the existing system, mouse task such as left, right clicking and scrolling it is on processing not fully implemented. Another major Disadvantage in existing System is controlling a mouse positioning and extract the hand shape from background. In today's technological era, many technologies are evolving day by day. In this project, three technologies are mainly used: object detection, image processing and color recognition. In this interface we have tried to control mouse cursor movements and click events using hand gestures techniques acquired using web-camera. This method mainly focuses on increasing human-computer interaction and makes it easy in use in a cost-effective manner. This paper proposes a way to control the position of the cursor with the bare hands without using any electronic device. While the operations like clicking and dragging of objects will be performed with different hand gestures. The proposed system will only require a webcam as an input device. The software's that will be required to implement the proposed system are OpenCV and python. The output of the camera will be displayed on the system's screen so that it can be further calibrated by the user. The python dependencies that will be used for implementing this system are NumPy, Autopy, Open CV.

1. INTRODUCTION

The most efficient and expressive way of human communication is through hand gesture, which is a universally accepted language. It is pretty much expressive. In this work, real-time hand gesture system is proposed. In this project an effective hand

gesture segmentation technique has been proposed based on the preprocessing, background subtraction and edge detection techniques [1]. Pre-processing is defined as procedure of formulating data for another process. The main objective of the preprocessing process is to transform the

data into a form that can be more effectively and effortlessly processed. It has been generations since we have been using hand gestures for communicating in human society. The shaking of hands, Thumbs up and Thumbs down signs have been ever existing in the environment. It is believed that gestures are the easiest way of interaction with anyone. So then why not apply it to the machines that we are using. In this work, we are demonstrating, real- gesture. The initial setup includes a low-cost USB web camera that can be used for providing the input to the system. A virtual mouse is software that allows users to give mouse inputs to a system without using an actual mouse. Left, right and double click events of the mouse have been achieved by detecting the number of pointers on the images. The hand movements of a user are mapped into mouse inputs. A web camera is set to take images continuously.

2. RELATED WORK

The most efficient and expressive way of human communication is through hand gesture, which is a universally accepted language. It is pretty much expressive. In this work, real-time hand gesture system is proposed. In this project an effective hand gesture segmentation technique has been proposed based on the preprocessing, background subtraction and edge detection techniques [1]. Pre-processing is defined

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3. IMPLEMENTATION

User makes a hand gesture that is captured by camera. Object recognition technique are used to extract information from the capture. This is then translated to the meaningful event on the screen. Touchpad is the main problem in the current technology and it is not comfortable and

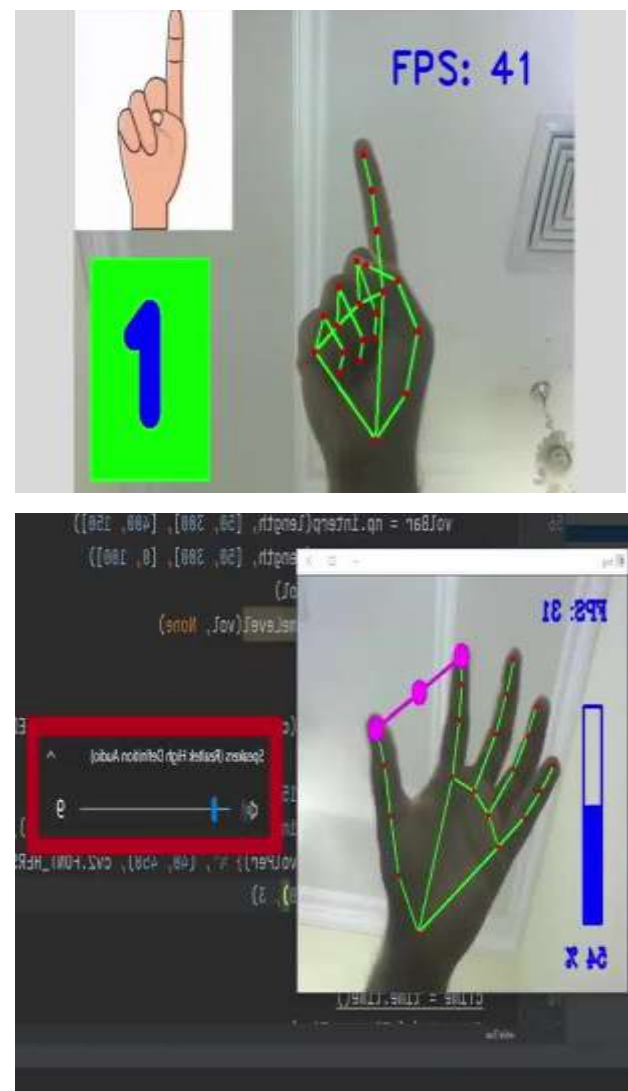
convenient. For example, in wired mouse there is a problem in extension limit. In wireless mouse software is needed such as Bluetooth Dongle software attached. so, to avoid all these problems in this system has no such disadvantages like hardware and software problems it only depends on hand gesture recognition. In the existing system, mouse task such as left, right clicking and scrolling it is on processing not fully implemented. Another major Disadvantage in existing System is controlling a mouse positioning and extract the hand shape from background. The purpose of the project is to create a virtual mouse that works with the help of a web camera. In this project a camera continuously takes images of hand movements of a user, which is then mapped into mouse inputs. This means that we can give inputs to computer without having any physical connection with the computer and without having any hardware movement

4. EXPERIMENTAL RESULTS

The proposed system uses nothing more than a low-resolution webcam that acts as a sensor and it is able to track the users hand bearing color caps in two dimensions. The system will be implemented using the python and OpenCV. The hand gesture is the most effortless and natural way of communication. The output of the camera will be displayed on the monitor. Shape

and position information about the gesture will be gathered using detection of color. The file transferring scheme is implemented by using the python server programming.

Prototype



5. CONCLUSION

Here we proposed a system where virtual mouse is recognized using image processing. System detects number of fingers. System detects separated fingers which are above the palm. System first detects skin color from image using filtering. Image undergoes various image

preprocessing steps in order to give accurate number of fingers. System finds nearest point from contour point. System erodes the image based on the centroid point. We applied more image preprocessing steps on resultant image so that fingers appear accurately. System finally detects number of fingers and displays the count to user. The system architecture that has been proposed will completely change the way people would use the computer system. Presently, the webcam, microphone and mouse are an integral part of the computer system. This project will completely eliminate the necessity of mouse. Also this would lead to a new era of Human Computer Interaction (HCI) where no physical contact with the device is required. We implemented all mouse tasks such as left and right click and all the functions of the mouse by using hand gestures.

6. REFERENCE

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