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Controling The Cursor Of Mouse Using Hand Gesture

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Abstract: This paper proposed that the way of controlling the cursor with our hands without using the electronic device. The operation performed like clicking dragging removing deleting will be preformed by the different hand gestures and sign. This system needs only a webcam as input device which will control the system of gesture and the software which is required to implement this system is OpenCV and python. The camera output will be displayed on the operating system screen so that it can be further calibrated by the user. And it also perform the file transfer between the two system which are connected to a same and single network the system uses nothing more only the low resolution webcam which will act as sensor and able to track the user hand bearing color caps into the two dimension the hand gesture is a natural way of communication and also the transferring file scheme will be implemented by using the python server.

Keyword: OpenCV, Hand gesture , Image capture, Masking

I. INTRODUCTION

It has been long days and generation since we have been using the hand gesture for the purpose of the communication in the society of the human especially the hand shaking is often used while meeting the people like for the thumbs up sign and dislike for the thumbs down sign these are common gesture used by the human in day to day life since it has believed that hand gesture is the easiest way of interacting with the new people also with anyone. It is much expressive that it is used for the dumb and also for the deaf people so that they could understand. This work is divided into the four stages such as the preprocessing of the image, region extraction, extraction of the feature , matching feature If the human can interact than the machine can also do interact. In this system the effective hand gesture technique has been proposed that is based on the preprocessing background subtraction and detection technique of edge the preprocessing is defined as the procedure of data formulating from another process. The main process of preprocessing is that process to transform the data into the form which can be effortlessly processed. In this system the preprocessing technique have been created for the different type of combination from the hand gesture the operation performed by the preprocessing are gesture of hands, preprocessing the image processing the operations which include capturing of the image , removing the noise, detection of edge and the processing methods are discussed are as follows the hand gesture image are capture by the vision based camera it can be observed by the different interfaces such as “data gloves” that record every abduction angle and the positional sensor for the wrist and electromagnetic requiring the user to use the gloves. This paper aims to build a cost free hand recognition software for the personal computer and for the laptops with the support of the webcam this system cover the hand recognition tool which could used for moving the pointer of the mouse and can perform the simple operations like clicking and the other hand gesture for moving the file form computer to the computer.

II. EXISTING SYSTEM

The existing system consist of a wireless mouse or a wired for controlling the cursor, But we can use the hand gesture for monitoring the system where we can perfume the basic operation of the mouse like pointer of the mouse , left click, right click , drag so on. The virtual mouse control the system by using the operation detection of the colored tips which have been captured by the webcam hence the colored fingers will act like object in which the webcam sense the object color like red , green, blue for monitoring the system ,Whereas in this system use of the static hand recognition like fingertip identification, number of fingers, shape of the hands for define the action explicitly, that makes the system difficult to understand. Even there are many number of system which are used for the hand recognition that is simple recognition shape made of the hand and also define every action for each of the shapes made by the hand.

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III. PROPOSED SYSTEM

This system work by the identifying the color of the hand by this it decides the position of the cursor accordingly but not all the condition is same there is different and many scenarios which make the algorithm difficult to work and run in the real time environment due to some of the following reason as shown in the Figure 1.

1) Environment noises.
2) Lightning condition environment.
3) Background objects in the same skin color.
4) Texture different skin.

Fig . 1 Virtual mouse using hand gesture and color detections.

It becomes important that the determining the color algorithm work accurately, This system can work for the different type of skin tone which are of any color also we can work in lightning condition as well the user need to create an angle of 15 degree between his two finger which can easily replay the traditional mouse.

The project done by the system laptop cost zero because the laptop have already webcam which only use a simple algorithmfor determining the hand, movements of the hand and assigning the action in each of the movement. The movement of the hand for doing the specific action is much more extendable, It can also be further modified by implementation of the actions for setting the gesture of the hand this scope is restricted by the imagination.

IV. APPLICATION AND USES OF PROPOSED WORK

This work system can very easily replace the traditional mouse system which has been existing to decades the use of the algorithm by this the user can control the mouse without any hardware devices that are done only by the hand gesture recognition which gets inputs from the webcam.

It uses the simple color caps on the finger without any other requirements for controlling it could be done by the vision based hand gesture inputs from the camera.

V. METHODOLOGY

The first method is to capture the image using the webcam, or we can also use the USB webcam after that the camera extract the hand gesture of the human then the hand position is stored in the system using regular “co-ordinate system”. Then second frame has been captured the position of hand from second frame is captured, and it's also stored in the system. After that both the captured hands image have been compared according to that the cursor moves accordingly.

Now if the angle between the two fingers are less than the 15 degrees the system responds for the left click in the all this way the working of the mouse can be done with bare hands. Activate the camera so that the input can be provided for the system cam = CV2 this is the command which will activate the camera and will take the input which will be given by the user as shown in Figure. 2 input the hand gesture int the system so that it may be used for moving the cursor.

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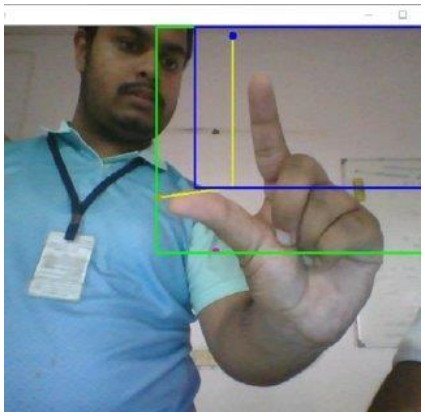

Fig.2 Activating the web cam for input

To identify the skin color and separating the skin color from the other background color for this we use the mask function the mask function identifies the color of the skin using the RGB parameters than are used to remove the noise from the inputs. Hence only the correct input is provided to the system for the further process as shown in Figure.3.

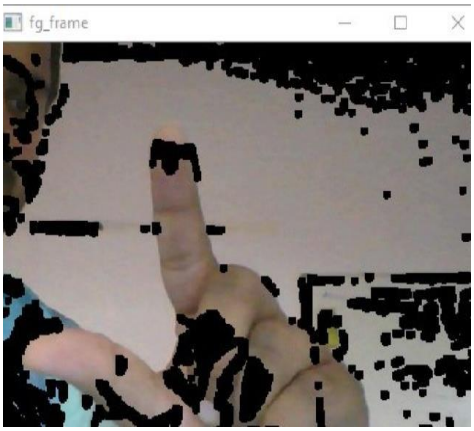

Fig.3 Extracting skin color from the input image

VI. CAPTURING FRAME

The infinite loop is used for capturing the frame by the webcam. Capture the live feed frame by frame than the each capture frame which is in the RGB color space to HSV color space. There are near about more than 160 color-space conversion method which is available in the Algorithm OpenCV. But we looks only on the two methods which are being used widely for every system BGR to Gray Scale and BGR to HSV.

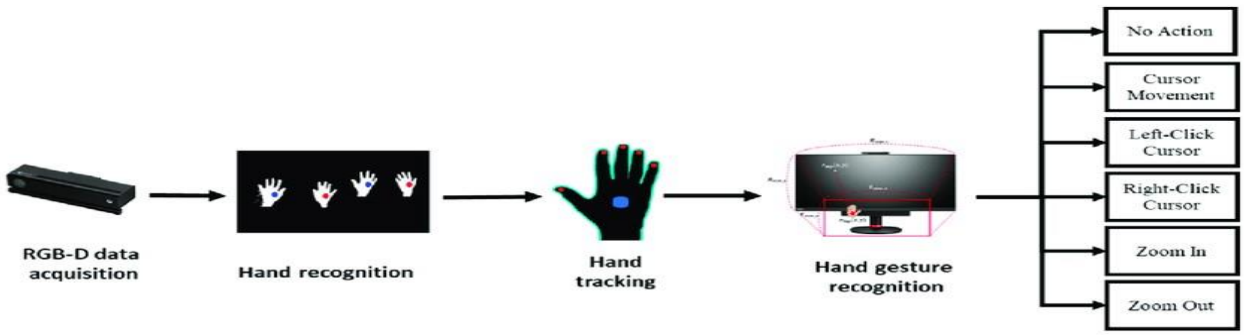

Fig.4. Flow Chart

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VII. CONCLUSION

Gesture recognition gives the best interaction between both the human and also the machine it is also important for Making the computer interaction modalities. It also enables the human to interface with the machine system in the natural way. Gesture is only the way which is used for many purpose such as for sign language for the people who are deaf and dumb , for also the robot control.

REFERENCES

[1]. Lowlesh Nandkishor Yadav "Predictive Acknowledgement using TRE System to reduce cost and Bandwidth" Factor 7.39 Vol. 11, Issue 3, March 2022.
[2]. Ashish B Deharkar "An Approach To Reducing Cloud Cost And Bandwidth Using Tre System"