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## Object detection using virtual input device

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### **Abstract.**

*Recently the computer inventiveness has crossed to peak level where the people are working in the virtual world. These virtual keyboard and mouse are boon for the physically impairment people. Since there is no usage of wires and external devices people the keyboard functions are used in some different gestures. We use webcam and code is build using the anaconda platform in python language. The defects calculation is done, which is generated and mapped to keyboard and the mouse functions using an algorithm. A Gestures of person who is in front of webcam is understood using image processing.*

**Keywords—**Mouse, Keyboard, Convex Hull Process, Image Processing, Anaconda Platform, Python

### **I. INTRODUCTION**

The use of the internet appliance are the main important part of life. The interaction using internet appliances are most appropriate gradually by which the high number of people take it very easily but it's not so easy these facilities are granted. But people with physical impairments are having much difficult to properly use these devices. Since the people with disabilities have the physical impairments in which they have some significant limits to control it. Then they cant be used due to there problems. So,it may be very effective to assist technologies and to ensure that accessibility of such devices, the code is developed. In this we use the multi model where we use keyboard and mouse to detect track and colour which replaced the traditional use of keyboard and mouse. Use of the camera and no use of any other additional hardware materials inputs from user are captured and the frames are extracted using vision based technique and hand gesture recognition techniques. The main objective is to build the interactive physical and mouse.

The end user give a chance to person to use the computers keyboard and mouse with hand using yellow colour cap on their finger.

The secondary objectives are:

- Recognize the yellow colour tip.

- Observe key in which the cap is positioned or not.
- Route the hand motion and the yellow tip to the gesture of mouse.
- Replicate finger numbers to determine the left click and right click of mouse.

The simple gestures can do the keyboard function in which virtually they may have the physical appearance. If gestures don't match, the box shows green box. Then real gestures are identified red borders are appeared.

Basically, the object is detected using keyboard and mouse using the anaconda platform using python code. This project aims to help for paralyzed people, to use and can easily interact with the system using virtual mouse and keyboard.

The articles come up. Section 2 discuss about our project related works. Section 4 discuss about the methodology and applications as we followed. Section 5 Results and Analysis followed by Section 6 discuss about the conclusions. Future world it is most liked practically and the most featured security have the own revolution where the smart homes are made possibly from Internet Of Things.

## II. LITERATURE SURVEY

In this paper[1] the author says about the development of hands gesture using virtual Mouse and development of hands gestures.

In this paper[2] the author says about the the facial expression using deep learning to assess the intelligent system to uncertainty.

In this paper [3] the author says about how to handle the virtual keyboard and mouse for handicap people.

In this paper [4] the author says about the how to control the mouse using web camera in which the person can operate virtually.

In this paper [5] the author says about the keyboard and mouse to gesture it and how to use interacting of two virtual devices.

In this paper [6] the author says about the eye gaze and eye blink for virtual keyboard interaction.

## III. PROPOSED SCHEME

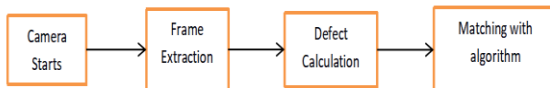


Fig1. Block diagram of Object detection

- 1.Camera starts:** Firstly, here the camera starts the program then it takes next step.
- 2.Frame Extraction:** In Frame Extraction it uses the convex hull process to start its next step.
- 3.Defect calculation:** In defect calculation it takes the matching of defects and by using centroid calculation.
- 4.Matching with algorithm:** If the Convex hull algorithm matches then the output will be detected using gesture of mouse and keyboard

### III. METHODOLOGY

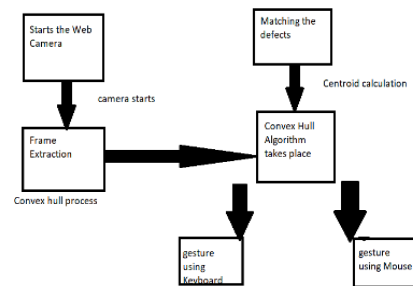


Fig2. Flow diagram of Keyboard and mouse

Mouse uses image processing in that we use RGB to HSV method to build and start the working of it the defects are the real and are observed using the concept of the image processing in that RGB to HSV which the range filter is set to its threshold value for minimum and maximum process to identify its particularly functionality:

When the cam-coder starts its execution process then the below steps are followed:

Step 1: Firstly fix the experiment on the laptop, When the experiment starts it will accordingly starts its video recording and it display some circumstance.

Step 2: It is achieved using open CV builtin library which the performs and captures some scene and colors.

Step 3: There are many methods so in that there is used range filter for in which the human being can adjust his specific objects and colors.

Step 4: To detect the object the range filter method is used where it sets the threshold value that can be RGB to HSV.

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Step 5: When the user is using the yellow colored objects it is used using minimum and maximum threshold values in which the object can be detected using the mouse.

Keyboard uses convex hull algorithm to build and start the working of it then the web camera opens and the person can see his window with consists of row of keys in that the open palm is shown then he can move the hand from left to right.

Step 1: The camera opens then the window is appeared.

Step 2: Letters and the row of keys which are really used is visible in color of red.

Step 3. The use of real movement of letters and keyboard it will move functionality of computer.

Step 4. Using the palm the row of keys are passed to right to left with the help of keyboard and its consequence.

Step 5. Using the fingers the key can be more essential for letters and some keyboard methods.

Step 6. The letters are printed on the screen and will be visible in the camera .

#### **IV. RESULTS ANALYSIS**

Using the gestures of hand which the video captures the live environment in an video opening through the virtual keyboard which has been traced. A small row of keys has the color red can be very quiet used. Using the picture accordingly with the numbers and letters the rows of key function is captured.



Fig3. Keying in

The user is trying to type the the letters which is used to detect it using the mouse control module.



Fig4. Controller

In this figure the user is trying to control mouse in which he can able to understand.

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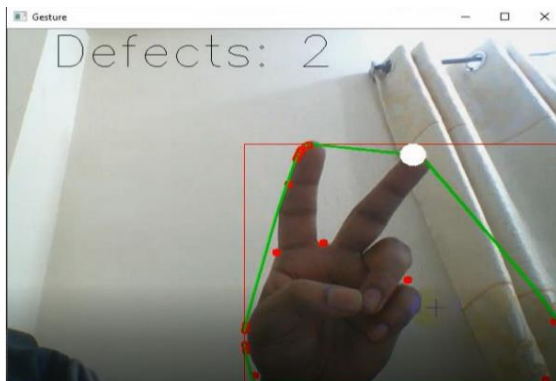


Fig5. movement of pointer

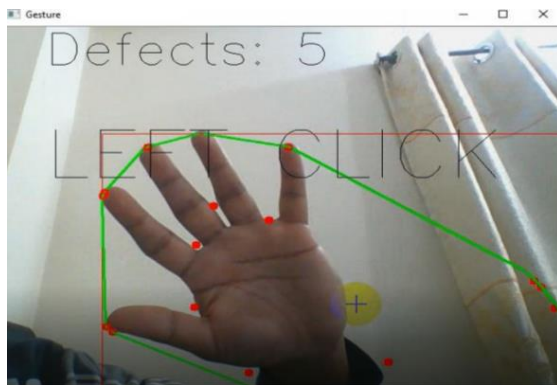


Fig6. Left snap

The user is trying to operate the keyboard using his palm in which he can left click and the defects are shown as 5.

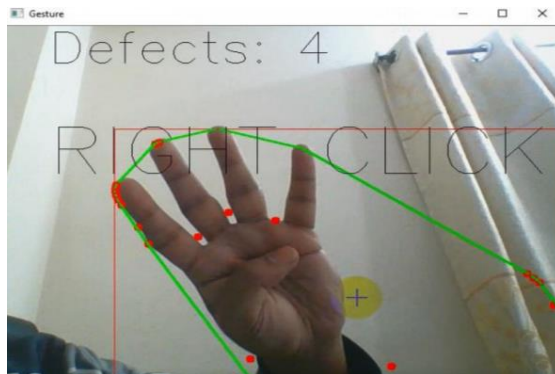


Fig7. Right snap

In this the user is trying to right click on screen to operate the user where he controls it and the defect is shown as 4

## V. CONCLUSION

The recently published method is used to recognize the hand and gestures which provides the mouse to detect the threshold value using the RGB method in which the drag and drop is used the skin separation is reused to discrete the images and color with hands and its back end. To separate the arm method who solves the circumstance and to detect the hand movement by this the user can easily use the gestures which will be easy for him and creates one real one tampering and etc. This implemented project is very easy and is used in real time examples like medical science in which the calculation is most important unluckily it may no be built because of absence of human machine interaction.

## VI. REFERENCE

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