International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 06 Issue: 06 | June - 2022 Impact Factor: 7.185 ISSN: 2582-3930

FINGER COUNTING AND VIRTUAL MOUSE USING CVLEARN

Mr.Voruganti Naresh kumar, Assistant Professor,Dept of CSE,CMR Technical Campus
Andrew Dominic Fernandez, Dept of CSE,CMR Technical Campus
P Keerthana Reddy, Dept of CSE,CMR Technical Campus
E Vamshi Yadav, Dept of CSE,CMR Technical Campus

ABSTRACT: The finger tracking system is focused on user-data interaction, where the user interacts with virtual data, by handling through the fingers the volumetric of a 3D object that we want to represent.

The finger tracking system focuses on user-data interaction, where the user interacts with virtual data, by handling through the fingers the volumetric 3D object that we want to represent. The human interaction problem gave rise to the system.The main goal is to establish a communication between them and for them to be more intuitive, Finger tracking was developed. The system is capable of tracking the real-time positions in 2D and 3D orientations of the fingers and these intuitive hand movements are used for interactions.
Our project introduces an approach where with mouse cursor movements can be controlled using the real- time camera. It is basically an alternative for the all types of mouses that we use. It uses a camera and computer vision technology to controls various mouse actions and is capable of performing every task that the physical computer mouse can.

KEYWORDS: CV learn, Python, Hand gestures, Web camera.

I. INTRODUCTION

In last few years technology has been highly developed and people seek devices which makes their work easier and which are convenient to use. Our project is depended on Human Computer Interaction (HCI)which allows us to perform hand and finger gesture recognition. In our project we propose a new method which allows the user to handle the mouse operation by the usage camera access.

Gesture simply states the physical behavior or interaction of human with the computer system. It acts an interface which allows the user to communicate with computer in an efficient way. Basically, the virtual mouse creates a connection between the user and machine without any requirement of hardware.The system will capture and track the actions of a person who is making gestures Infront of a webcam, and the system detects finger movements and performs mouse operations.

II.LITERATURE SURVEY

Here the process that we use compromises of a generic mouse and a track pad monitor control system and the absence of a hand gesture control system. Hand gesture from a distance is not possible. Although there have been attempts but the scope is very limited.

The proposed system performs finger tracking where it can do simple mouse operations like left click, right click, drag, drop, etc. This proposed system can be well developed and be more accurate in coming days

by using advanced technolgy .

Below is the technique that we used:

Finger gestures: A sensor(webcam) will identify the gestures of finger movements. These certain gestures need to be performed in order to accomplish the desired mouse action

III.PROPOSED METHODOLOGY

Here we have three modules: user module, camera module and system module.

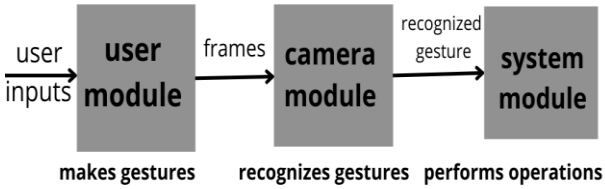

Figure 3.1: Proposed architecture

USER MODULE: In the user module, the user makes hand gestures or finger gestures

sitting Infront of the real time camera and these gestures will be converted into 2D or 3D images

CAMERA MODULE: Here we are going to use an inbuilt camera by using which we capture the gestures made by the user and process those images into frames for recognizing different sorts of gestures

SYSTEM MODULE: This module is responsible for calibrating the detected hand gestures to their perspective actions. All windows are opened automatically the gestures are taken as inputs from the user and accordingly PyAutoGui gets into work and perform various operations

V.RESULTS

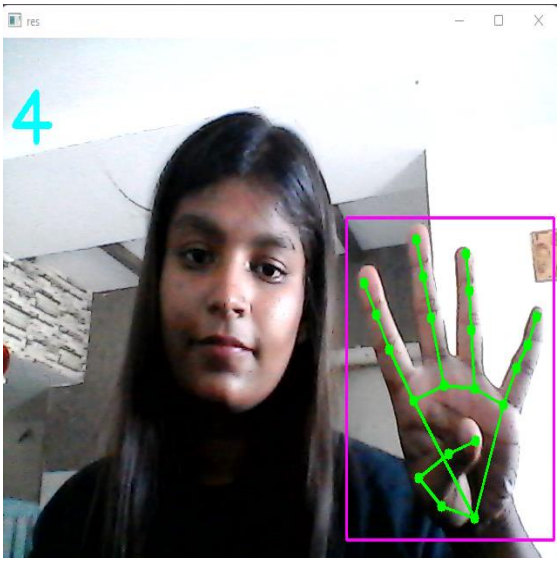

Figure 5.1 : Finger Counting

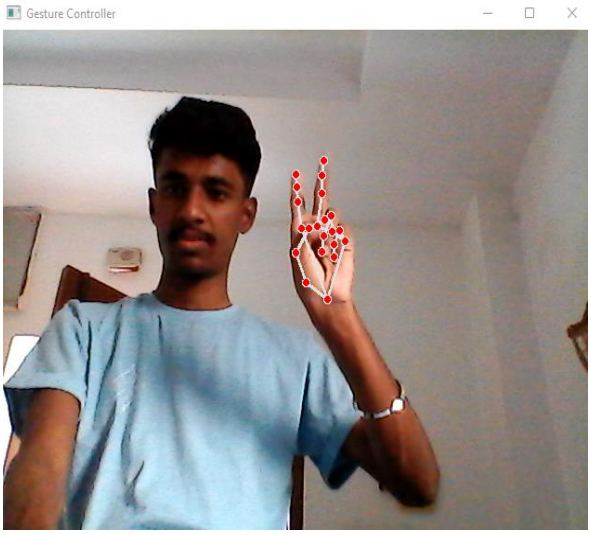

Figure 5.2: Gesture For ScrollingScreen Up

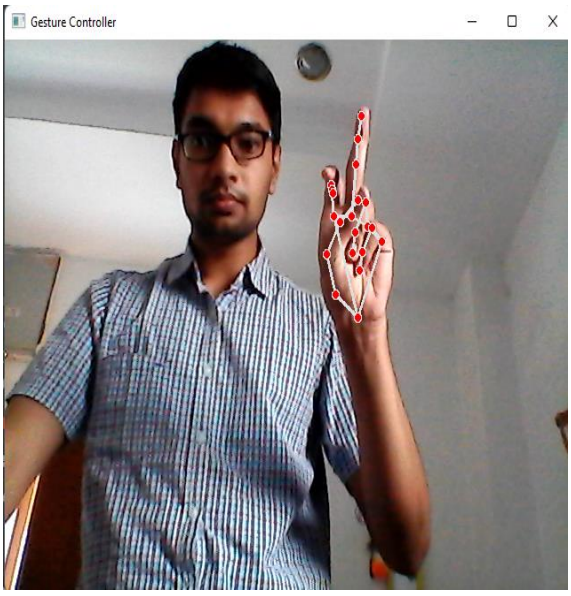

Figure 5.3:GestureFor Left Click Operation

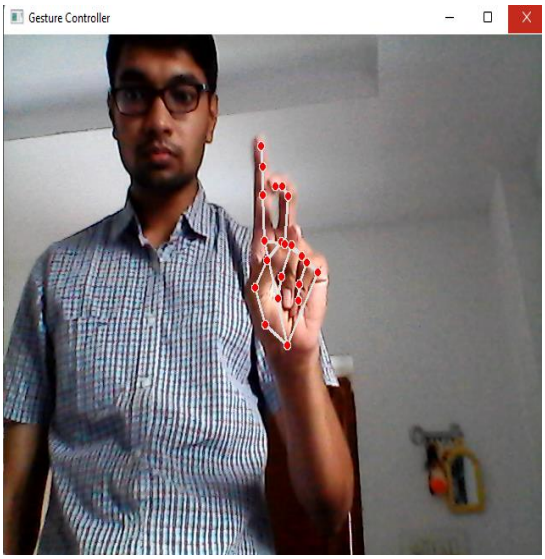

Figure 5.4: Gesture For Right Click Operation

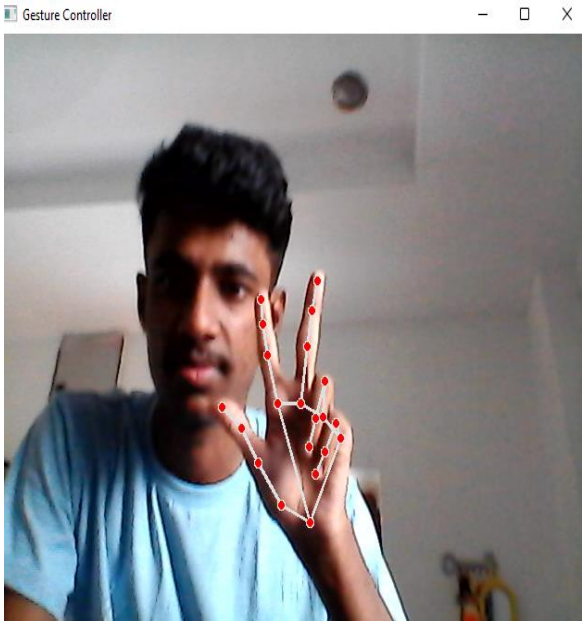

Figure 5.5:Gesture For Virtual Mouse Movement

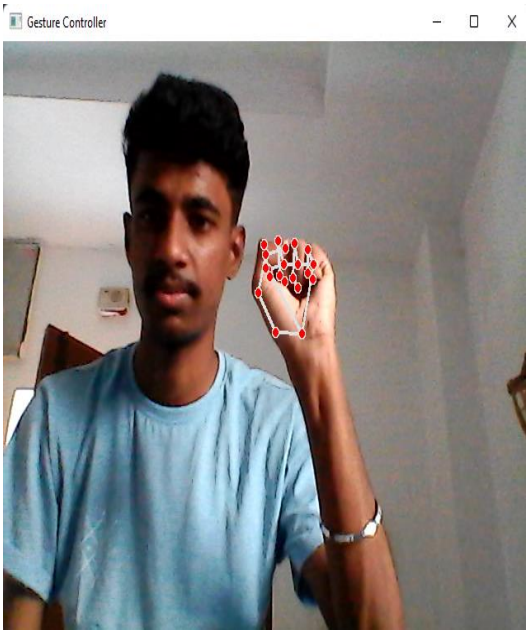

Figure 5.6: Gesture For Drag and Drop

VI. CONCLUSION

A new method for finger tracking is introduced in this project. Using the movements of the fingers , we are going to control the operations of the mouse. On the other hand, we are also able to recognize the number of fingers for identifying or recognizing the person's identity.

We conclude that the proposed virtual mouse has being well developed and has a greater accuracy when compared to other existing models . Since our project has greater accuracy, the virtual mouse can be used for real-world applications like gaming,Iot devices,consunmer electronics and robots.

VII. FUTURE SCOPE

The model proposed has some drawbacks like the accuracy of the left and right click. These limitations will be over come n the future work. Further more this can be added with a virtual keyboard as well.

VIII.ACKNOWLEDGEMENT

The success of this paper includes help from our guide as well. We are grateful to our guide,

Mr.V. Naresh Kumar, Associate professor, CMR Technical Campus, for his expertise that assisted us in our research.

IX REFERENCES

[1]. Practical python and open CV +Case studies ,4th - edition ,Author: Adrian rosebrock ,Pie image serach

[2]. Open source computer vision for beginners by Nuruzzaman Faruqui

[3].A practical introduction to computer vision with open CV (Wilwy-IS&T series in imaging science and technology)-Author:Kenneth Dawson - Howe

X.AUTHOR PROFILE

Mr.Voruganti Naresh kumar
Assistant Professor
Dept of CSE
CMR Technical Campus

Andrew Dominic Fernandez
IV year Student
Dept of CSE
CMR Technical Campus

E Vamshi yadav
IV year Student
Dept of CSE
CMR Technical Campus

P Keerthana Reddy
IV Year Student
Dept of CSE
CMR Technical Campus