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VIRTUAL MOUSE WITH GESTURE CONTROL

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ABSTRACT

Many technologies are changing daily in today's technological age. Human-system interface is one such exciting idea. For instance, there is no option to tighten restrictions in a stressed-out mouse. Wi-Fi mice require Bluetooth hardware to be installed on the laptop and a Bluetooth dongle to be connected. In this paper, the usage of various gestures of hand is shown to depict activities such as dragging out of things, clicking and others. Only a webcam will be required for the suggested device's input. OpenCV and Python are the two software programs that will be needed to implement the suggested machine. The turnout from the digital camera can be seen on any machine's screen so that the user can calibrate it in addition. In this paper, we offer up a refreshing way for HCI or Human Computer Interaction which allows the apparent motion of the cursor to be managed by a live camera.

KEYWORDS: *Human-Computer Interaction, Motion detection, Hand Gesture, Gesture Control, OpenCV, Mediapipe.*

1. INTRODUCTION

For a very long time, the computer vision community has been particularly interested in the subject of gesture recognition. Hand gestures represent a way of visual communication which can be conveyed with the help of palm centre, positioning of the fingers, and overall anatomy of hand. Hand gestures can be divided into two categories- static categories and dynamic categories. As the name suggests, static gesture is related to the steady anatomy of hand, while dynamic gesture is known for consisting of a variety of hand movements such as waving [1].

There are many discrete hand gestures that can be used for instance, handshake differs from individual to individual and also alters depending upon the location and occasion. The elementary distinction amongst the gesture and posture is that one emphasizes the form of the hand while the other emphasizes hand movement. Over the last ten years, computer technology has advanced significantly and integrated itself in daily life. The mouse is the main tool used in HCI or human computer interaction. In many existing real-world scenarios, such as Human Robot Interaction or HRI, the usage of mouse is not so appropriate for human computer interaction. Numerous studies already exist on the alternatives to the computer mouse for HCI.

The usage of the hand gestures is the most integrated and intuitive HCI interaction technique which can efficaciously replace a mouse of computer. Our main aim is to provide an alternate of the use of touch screen by creating a virtual mouse system which uses an internet camera for communication with other device in a more flowing manner. A webcam's full potential can be realized by using it for