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Computer screen control using arduino uno, laser and hand using open CV

Dr. Kavitha C[1], Manisha Poonia[*2], Mansoor Ahmed[3], Meghana M[4], Naveed N[5]

Student, Computer Science and Engineering, Dayananda Sagar Academy of Technology and Management, Bengaluru, Karnataka

*Corresponding Author: Manisha Poonia

Abstract:

This work presents a screen control system for human-computer long-distance interaction. This paper offers solutions for using fingertip detection and a laser emitting mouse to manipulate the screen elements of various programmes and browsers. The projector-mounted camera is capturing the images, and the OpenCV library is being utilised to identify the movements of the laser. Additionally, the approach employs Arduino as the central processing unit to simulate mouse movements with the buttons. The laser specifies user orders, and the microcontroller's buttons are used to start the actions. The mouse buttons can be used to initiate the hand motion when the screen is close by, displaying a touch screen in a projection. OpenCV, a Python computer vision toolkit that processes images in real time, is used to achieve hand fingertip recognition. Many actions, including as navigating between tabs, launching new applications, painting, and so forth, can be carried out in accordance with fingertip recognition.

Keywords:

OpenCV, Arduino UNO, Digital Camera, Human-Computer interaction