ABSTRACT

Mouse and Keyboard are the most important input devices that play a vital role in Human-Computer Interaction (HCI). Though wireless or Bluetooth mouse and keyboard technologies are invented still, those technologies are not completely device free. This proposed work describes the implementation of the virtual mouse using hand gesture recognition and a Voice Typing Keyboard. This system captures the live input video stream using a webcam or built-in cam and takes each frame of the video as an input image to process the frames with media pipe solutions after that recognizes different gestures made by users and performs the corresponding mouse function. The proposed system uses a speech recognition module to recognize the user input audio and convert it into text format, which can be used as an alternative or physical keyboard. The goal of the system is to reduce interactions between people and the reliance on technology to operate computers. These results will motivate additional research and, in the long run, support the use of virtual environment. A gesture-controlled mouse uses OpenCV and Media-Pipe, whereas a voice assistant uses AI and NLP concepts to recognize the voice commands given by the user. The system should be used by performing hand gestures and executing the right click, left click, drag, drop, volume control and computer cursor functions, thereby omitting the need for a physical mouse.