VIDYA JYOTHI
INSTITUTE OF TECHNOLOGY
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DEPARTMENT OF ARTIFICIAL INTELLIGENCE

Gesture Controlled Virtual Mouse and Keyboard using OpenCV

ABSTRACT

A gesture-controlled virtual mouse simplifies human-computer interaction using hand gestures, voice commands and using Eye. Computers require very little direct contact. All Input and Output operations can be controlled virtually using static and dynamic hand gestures and voice assistance and eye movements. The project uses state-of-the-art machine learning and computer vision algorithms to recognize hand gestures,voice commands and eye movements that work with additional hardware requirements like ESPM32 camera.It uses a Convolutional Neural Network(CNN)-like model implemented by MediaPipe running on top of pybind11. It consists of two modules. One uses MediaPipe's hand detection to work directly with your hand, and the other uses a uniformly colored glove.The visual keyboard uses computer vision technology and artificial intelligence to let users work in air, by just navigating fingers in air to access keyboard keys.We use different kinds of modules such as CVzone Hand Detector module, Hand Tracking Module, and then import Controller from Pynput keyboard to make the virtual keyboard work.

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