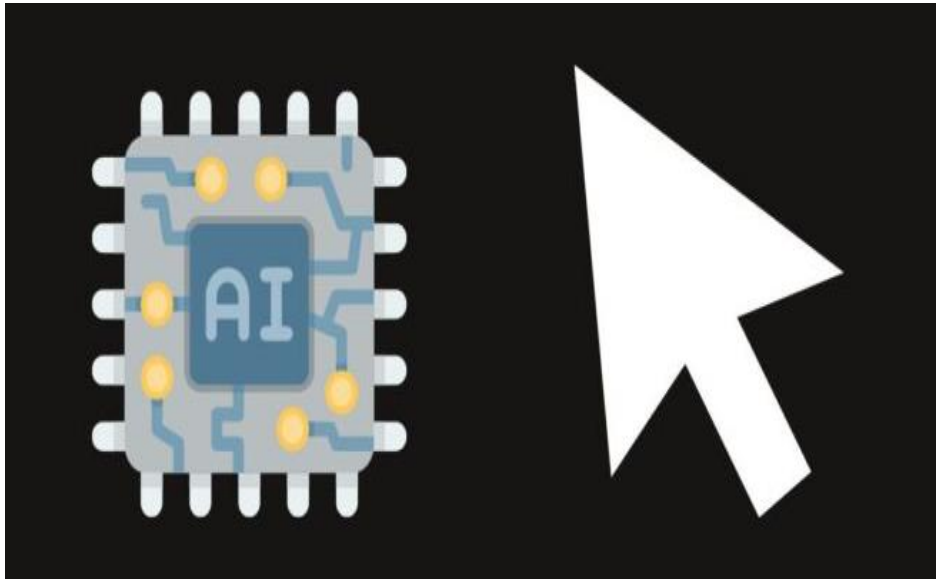
Implementation of Virtual Mouse

Using Hand Gestures



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ABSTRACT

- In today's world we see lots of development happened in the field of Technology. Today's technology is combined with the technique called Artificial Intelligence. This project is also based on small part of AI.

- This project presents finger movement gesture detection on our computer's window using camera & handling the whole system by just moving your one finger. Using finger detection methods for instant camera access and user-friendly user interface makes it more easily accessible.

- The system is used to implement motion tracking mouse, a signature input device and an application selector. This system reduces the use of any physical mouse which saves time and also reduces effort.

EXISTING SYSTEM AND LIMITATIONS

- The existing system consists of the generic mouse and trackpad system of monitor controlling and the non availability of a hand gesture system. The remote accessing of monitor screen using the hand gesture is unavailable.

- The existing virtual mouse control system consists of the simple mouse operations using the hand recognition system. The further use of the hand recognition is not been made use of.

- Even-though there are a number of systems which are used for hand recognition, the system they made used is the static hand recognition which is simply recognition of the shape made by hand.

- Its requires much effort while using any generic mouse and trackpad while performing a task.

PROPOSED SYSTEM WITH ADVANTAGES

- Using the current system even-though there are a number of quick access methods available for the hand and mouse gesture for the laptops, using our project we could make use of the laptop or web-cam and by recognizing the hand gesture we could control mouse and perform basic operations.

- The system we are implementing which is been written in python code be much more responsive and is easily implemented since python is a simple language and is platform independent with a flexibility and is portable which is desirable in creating a program which is focused in such an aim for creating a Virtual Mouse and Hand Recognition system.

- The system be much more extendable by defining actions for the hand movement for doing a specific action. It could be further modified to any further extent by implementing such actions for the set of hand gestures, the scope is restricted by your imagination.

Advantages:

- The main advantage of using hand gestures is to interact with computer as a non-contact human computer input modality.

- Reduce hardware cost by eliminating use of mouse . Convenient for users not comfortable with touchpad.

- The framework may be useful for controlling different types of games and other applications dependent on the controlled through user defined gestures.

- The project done is a “Zero Cost” hand recognition system for laptops, which uses simple algorithms to determine the hand, hand movements and by assigning an action for each movement.

SYSTEM REQUIREMENTS

Hardware Requirements:

- System: i3 Processor with 1.8GHz or Higher
- System type: 32bit/64bit OS
- RAM: 3GB
- Disc space: 256GB
- Webcam of min 30fps ,640 * 480 resolution

SOFTWARE REQUIREMENTS:

- Operating System : windows 8 or higher
- Python Version 3.8 Above
- VS Code or Pycharm softwares
- Packages: OpenCV, Mediapipe , AutoGUI etc

CONCLUSION

- We are developing a system to control the mouse cursor using a real-time camera . This system is based on computer vision algorithms and can do all mouse tasks.

- However, it is difficult to get stable results because of the variety of lighting and skin colors of human races . This system could be useful in presentations and to reduce workspace.

THANK YOU