PROJECT TOPIC: Gesture Controlled Media Player

Programme: MCA

Project Group Members:

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Objective: Develop a Gesture-Controlled Interface: To create an intuitive and efficient gesture recognition system that allows users to control media functions without using a traditional input device. Implement Real-Time Gesture Recognition: To build a system capable of detecting and processing hand gestures in real time using computer vision or hardware sensors. Control Media Functions: To enable users to control media playback, volume adjustment, and navigation (play, pause, skip, volume up/down) using gestures such as swiping, waving, or pointing.Improve Accessibility: To make media control more accessible for users with physical disabilities or those in situations where traditional control devices cannot be used.

Tools required:

- **Hardware Requirements:**
- **Laptop:** Camera For Gesture Capturing
- **Software Requirements:**
- Browser(Chrome, Microsoft Edge)
- VS Code (Its Depends on accessing the software)

Abstract: The Gesture-Controlled Media Player project showcases the practical use of computer vision and machine learning in the field of human-computer interaction. It provides an intuitive way to control media playback using hand gestures, offering a touchless interface that enhances user experience and accessibility. This system uses a webcam to capture real-time video of the user's hand movements. The project is developed using Python and integrates powerful libraries such as OpenCV for image processing and MediaPipe for accurate and efficient hand tracking. These technologies work together to detect and interpret hand gestures in real time. The interpretation of gestures is made possible through machine learning algorithms trained on a diverse dataset of hand signs. These algorithms recognize specific gestures and translate them into commands such as play, pause, volume up, volume down, next track, and previous track. This gesture recognition approach eliminates the need for physical buttons or input devices. To execute these commands, the system uses PyAutoGUI, a Python

library that simulates keyboard and mouse inputs. This allows the gesture recognition system to interact seamlessly with existing media player software without requiring additional integration or modification. By combining computer vision, gesture recognition, and automation, the project demonstrates how advanced computing concepts can be used to create practical, user-friendly solutions. It highlights the potential of gesture-based control systems in modern digital environments and opens doors to more natural and accessible human-computer interaction.

Outcome: