**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**B. TECH IV YEAR II SEM A.Y:2024-25**

**PROJECT ABSTRACT**

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| **TITLE OF PROJECT: GestureMaster: Real-time Hand Gesture Control for interactive presentation using computer vision** | | | | |
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| **ABSTRACT:**  This project presents an advanced “gesture and voice-controlled presentation system” that enables users to navigate slides, annotate content, zoom in/out, and directly jump to specific slides using “computer vision” and “speech recognition”. The system employs a “webcam” to detect hand movements using the “cvzone” and “OpenCV” libraries, which identify 21 landmark points on the hand for gesture recognition. Specific finger gestures allow seamless slide navigation, with a thumb-up gesture moving to the previous slide and a pinky-up gesture advancing to the next. Additionally, users can interact with the slides dynamically by controlling a virtual cursor using their index finger. The system also provides an annotation feature, allowing users to draw on slides by pointing with their index finger, while an eraser gesture enables the removal of annotations. A unique addition to the system is voice-command-based slide navigation, where the user can say a specific slide number, and the system automatically navigates to it. This functionality is implemented using speech recognition” via the Google Speech API. Furthermore, a \*gesture-based zoom function\* enables users to enlarge or shrink the slides, enhancing visibility during presentations. The \*gesture threshold line\* ensures that only intentional gestures trigger slide transitions, reducing unintended movements. The system operates in \*fullscreen mode, dynamically resizing slides for an optimal viewing experience. Annotations are stored in a list, allowing multiple layers of drawing and erasing, ensuring a smooth user experience. A delay mechanism is implemented to prevent rapid, unintended gesture activations. The system provides a \*\*hands-free and intuitive alternative\* to traditional input devices, making it particularly useful for educators, business professionals, and individuals with mobility impairments. Its \*interactive nature\* enhances audience engagement, making presentations more dynamic. Future enhancements could include \*multi-hand tracking, \*\*custom gesture mapping, and \*integration with popular presentation software such as PowerPoint or Google Slides. This innovative system “redefines slide navigation”, improving accessibility, efficiency, and user experience in various presentation settings. | | | | |

**Project Guide Project Coordinator**