

CHAPTER 11

CONCLUSION

The "SignSpeak" project aims to bridge the communication gap between French Sign Language (FSL) users and the broader population by converting sign language gestures into text in real-time. The project utilizes advanced machine learning techniques and image processing to achieve this goal. Specifically, MediaPipe is used for detecting hand movements and landmarks, which are critical for accurately interpreting the gestures. The core of the system is an LSTM model that has been trained on a dataset consisting of 36 distinct actions, each represented by 1000 images. This model was carefully trained and tested, achieving an impressive test accuracy of 99.58%, along with consistently high precision, recall, and F1-scores across all gesture classes. The project highlights the potential of deep learning models in handling complex tasks like sign language recognition, making it possible to translate gestures into text efficiently and accurately. One of the significant achievements of the project is its ability to handle both one-hand and two-hand gestures, which are common in sign languages like FSL. The system is built with a robust architecture that allows for real-time gesture recognition, providing immediate feedback in the form of textual output. This feature makes "SignSpeak" a practical solution for real-world applications, enhancing accessibility for the deaf and hard-of-hearing communities. The project's success demonstrates how AI and machine learning can be leveraged to create inclusive technologies that promote better communication and understanding. Overall, "SignSpeak" is a step forward in using artificial intelligence to break down language barriers and foster inclusivity.