ABSTRACT AND TECHNOLOGY STACK

ABSTRACT

Sign language is an essential means of communication for individuals with hearing and language impairments, allowing them to convey their thoughts visually through hand gestures. However, sign language is not widely understood by the general population, creating a significant barrier for those with impairments in their interactions with others. This isolation from the broader society inspired our project, which aims to bridge this gap by translating sign language into English, making it accessible and understandable to everyone. The user's gestures are captured via a webcam, which is used to train the model for classifying each gesture with a specific sign. This trained model can then be employed to recognize and translate a sequence of gestures. To enhance performance, captured images are converted into grayscale images, and noise is filtered, resulting in improved accuracy. Computer vision aids in capturing the precise gestures of the users. Image processing and recognition is achieved using convolutional neural network. To further improve the efficiency of the project, machine learning algorithms like Support Vector Machine(SVM), AdaBoost and Keras API are to be embedded.

TECHNOLOGY STACK

Platform : PyCharm, Google Teachable Machine

Language : Python

Algorithms and concepts used :

Computer Vision

Convolutional Neural Network

Framework:

TensorFlow

Keras