PROBLEM STATEMENT

Date	10th September 2022
Team ID	PNT2022TMID35886
Project Name	Real-Time Communication System Powered by AI for Specially-Abled

To design an intelligent sign language recognition system for people with disabilities, so that they can communicate with others easily.

OUR PLAN:

The aim of this project is to create a software that does not only convert sign language into text and speech but also translates speech into sign language in real time and as quick as the person speaks. We will be using a deep learning model like CNN for this project. CNN is used for image classification and classifies the object into the respective classes and does the object detection accordingly. An app is built which uses this model. This app enables deaf and mute people to convey their information using signs which gets converted to human-understandable language and speech is given as output.

ABSTRACT

Technology is the need of the hour and with rising developments in Technology, so does the need for the disabled people. This project aims at the welfare of disabled people. First, we train a deep learning model on training data that comprises of various images of numbers and alphabets in sign language. **Sign Language Gesture Images Dataset** from Kaggle which contains 1500 images per class and has got 37 classes, is being used to train our model. The dataset contains 70 images belonging to each class, namely numbers and alphabets. We make use of Convolutional Neural Networks for our deep learning model. Next, once the model has been trained, it takes an image as input and then recognizes the sign made by the person in the image. The sign made by the person is captured by a camera and fed into the model for classification. Finally, the recognized signs are converted to audible speech make sure it can be understood by a wide array of people. This system will be deployed as a web application, using Flask framework. As a web application, this system could be accessed by many people on a variety of devices and can be used at place where there's an internet connection.