Real-Time Communication System Powered by AI for Specially Abled

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Problem Statement

The project aims to develop a system that converts the sign language into a human hearing voice in the desired language to convey a message to normal people, as well as convert speech into understandable sign language for the deaf and dumb. This app enables deaf and dumb people to convey their information using signs which get converted to human-understandable language and speech is given as output.

PROBLEM

How might we facilitate better communication for specially abled people?

Key rules of brainstorming

To run an smooth and productive session

- Stay in topic.
- Encourage wild ideas.
- Defer judgment.
- Listen to others.
- Go for volume.
- If possible, be visual.

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Brainstorm

The following are the ideas suggested by the team during the brainstorming phase.

Febi

- Employing microphones to read the spoken language.
- Interpreting spoken language using NLP.
- Employing microphones to read the spoken language.
- Using cloud services to facilitate building and deployment of the proposed CNN.

Akshaya

- Using low cost image sensing module for sign detection.
- Mapping the gestures into a skeletal model and then converting into basic alphabets
- Real time sign detection using a model which can recognize Finger-spelling based hand gestures.
- Sign Language Detection from Hand Gesture Images using Deep Multilayered CNN

Andrea

- To deploy the model as an application in order to facilitate wider access by a larger number of people across the world
- Classifcation of images involving sign language communication using LSTM CNN.
- Capturing real time images using camera so as to be processed by the CNN model.
- Making use of a dataset with a large number of images under a wide variety of sign language messages.

Celina

- To amplify normal people's voice output.
- To use relevant packages for building the model.
- Employ NLP to convert normal people language.
- To develop a system that convert sign language to audible ones.