Ideation Phase

Literature Review

Date	19 September 2022
Team ID	PNT2022TMID03716
Project Name	Real time communication system powered by AI for specially abled

Literature Survey:

1. An AI software to communicate with deaf and mute in real time

This has been made possible by a third-year engineering student at BNMIT who has developed an Artificial Intelligence (AI) powered software application for the welfare of the deaf and mute people. The software, christened DnD Mate, does not only translate sign language into text and speech, but also translates speech into sign language, all in real time and as quick as the person speaks. Currently, there are no applications/software that facilitates a two-way communication channel.

This easy-to-use innovative digital translator works with your device's in-built cameras, reads hand and facial gestures by the deaf and mute user and translates them into text and speech. That is not all! The software will also translate your voice or text input into sign language.

'The software is based on a Deep Learning model and can work both offline and online. While in the offline mode, the deaf and mute person can communicate with you on the same device in real time; in the online mode, you can converse sitting in far off places as well, just like you talk to anyone over a video call,' says Bhargav DV, the third year Electronics and Communication Engineering student at BNMIT.

2. **Sign Language Recognition System for People with Disability using Machine Learning and Image Processing by M.Saleh, R. Albeshir, M.Tariq**

This paper shows how artificial intelligence is being used to help people who are unable to do what most people do in their everyday lives. Aligned with communication, D-talk is a system that allows people who are unable to talk and hear be fully understood and for them to learn their language easier and also for the people that would interact and communicate with them. This system provides detailed hand gestures that show the interpretation at the bottom so that everyone can understand them. This research allows the readers to learn the system and what it can do to people who are struggling with what they are not capable of and will provide the technical terms on how the system works.

3. Design of a Communication System using Sign Language aid for Differently Abled Peoples by Shrikant Temburwar, Payal Jaiswal, Shital Mande, Souparnika Patil

Our goal is to design a human computer interface system that can accurately identify the language of the deaf and dumb. With the use of image processing and artificial intelligence, many techniques and algorithms have been developed in this area. Each character speech recognition system is trained to recognize the characters and convert them into the required pattern. The proposed system aims to give speech speechless, a real-time character language is captured as a series of images, and it is processed and then converted into speech and text

4. Two Way Communicator between Deaf and Dumb People and Normal People.

This system consists mainly of two modules, the first module is Indian Sign Language (ISL) gestures from real-time video and mapping it with human-Understandable speech. Accordingly, the second module is the natural language as Input and card with equivalent Indian Sign Language animated gestures.

5. Sign Language Learning based on Android for Deaf and Speech Impaired People.

This research makes an Android-based application that can directly interpret Sign language presented by deaf people in written language. Translation process Starts with the detection of hands with OpenCV and translation of and signals The K-NN classification. Tutorial features added in this application with the goal to train intensively to guide the user when using the sign language.

References

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7. Design of a Communication System using Sign Language aid for Differently Abled Peoples. Shrikant Temburwar, Payal Jaiswal, Shital Mande, Souparnika Patil International Research Journal of Engineering and Technology (IRJET) Volume: 04 Issue: 03 | Mar -2017