LITERATURE SURVEY

Project Title	:	**Real-Time Communication System Powered by AI for Specially Abled**
TEAM ID		**PNT2022TMID26243**
TEAM MEMBERS		**B.Priyaadarshan** **S. YuvaRaj** **Suriyaprakash K.S** **TharunKumar R** **Lokeshwaran V**

[1] Title	Messaging and Video Calling Application for Specially Abled people using Hand Gesture Recognition
Author:	Rachana R. Chhajed , Komal P. Parmar , Manvi D. Pandya , Neha G. Jaju
Journal / Conference	2021 6th International Conference for Convergence in Technology (I2CT) Pune, India. Apr 02-04, 2021
Methodology:	The app will basically convert the sign language to text while messaging and to voice while video calling for a normal person and vice versa for deaf-mute people. It uses vision-based approach CNN applied to ISL Dataset and for object detection YOLO v4 has been used. The application will recognize deaf-mute speech samples of alphabets (A–Z), digits (0 to 9) and various common sentences. Other different types of gestures can also be added to the database.
Advantage:	It will provide messaging and video calling service for both deaf-mutes and normal people.
Limitation:	scope can be extended for blind people

[2] Title	Predicting Sentiments to an accuracy matching the gesture recognized for the specially-abled
Author:	Jaganath Prasad Mohanty , Ayas Kanta Swain, Kamalakanta Mahapatra

Journal / Conference	2020 IEEE International Symposium on Smart Electronic Systems(iSES) (Formerly iNiS)
Methodology:	In this work, Natural Language Processing (NLP) is done to accurately recognize the sentiment behind the gestures of a specially abled individual, to analyse their behavior in real time considering different application platforms.
Advantage:	A new paradigm shifts in acknowledging the services offered by an all-inclusive world and consumer industry to specially abled public by making their lives more comfortable. It can be linked to industry inputs to provide services adherent to their needs.
Limitation:	classification for improved analysis and creating statements that match with the behaviour of the sign language user.

[3] Title	Portable Communication Aid for Specially Challenged : Conversion of Hand Gestures into Voice and Vice Versa
Author:	T Meera Devi, K M Shravan Raju
Journal / Conference	2018 International Conference on Intelligent Computing and Communication for Smart World (I2C2SW), 2018, pp. 306-310, doi: 10.1109/I2C2SW45816.2018.8997140.
Methodology:	The work is to develop a portable device for the disabled people who are not able to communicate with the normal persons properly. There are various steps involved in recognising the feature distinguishing hand gesticulation. The collected gesticulation is trained using Neural Network. The hand movement pattern is separated from a continuous recording of gestures. Low-Level understanding for the feature pattern comprises the gestural segment
Advantage:	This will be useful for the normal people to communicate with differently abled people and vice versa.
Limitation:	Separation of the hand movements from continuous hand gestures may result in accuracy issues.

[4] Title	Survey on sign language recognition in context of vision-based and deep learning
Author:	S. Subburaj , S. Murugavalli

Journal / Conference	Measurement: Sensors, Volume 23, 2022, 100385,ISSN 2665-9174, https://doi.org/10.1016/j.measen.2022.100385.
Methodology:	It examine the methods employed within the SLR systems, and the classification methods used, and to propose the most promising technique for future research. This paper specializes in the classification strategies utilized in earlier Sign Language Recognition.
Advantage:	shared a quantitative study of different methods used in sign language recognition

[5] Title	Artificial Intelligence enabled virtual sixth sense application for the disabled
Author:	Aditya Sharma |Aditya Vats |Shiv Shankar Dash|Surinder Kaur
Journal / Conference	Fusion: Practice and Applications (FPA), 1(1), 32–39. https://doi.org/10.5281/zenodo.3825929
Methodology:	The main highlight of the project is an application that provided a one-stop-shop solution to all the sections of differently-abled people. Integration has provided a seamless User interface/experience for the initial setup. Another point achieved here was no extra hardware; hence, no additional cost to utilize the service. The application still does depend on the camera picture quality for object detection and OCR but is still high enough in confidence level (70%) for most of the cases which were covered.
Advantage:	The major contribution of the work is an innovative approach for text to speech is implemented to provide a faster and convenient approach for mute to communicate through SAM (Speech Assisted for Mute).

[6] Title	Real-Time Sign Language Detection using TensorFlow, OpenCV and Python
Author:	Prashant Verma, Khushboo Badli
Journal / Conference	International Journal for Research in Applied Science & Engineering Technology (IJRASET) ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538 Volume 10 Issue V May 2022-
Methodology:	This project falls under the category of human-computer interaction (HCI) and tries to recognise multiple alphabets (a-z), digits (0-9) and several typical ISL hand gestures. To apply Transfer learning to the problem, we used a Pre-Trained SSD Mobile net V2 architecture trained on our own dataset.

Advantage:	a computer-based intelligent system that will allow deaf persons to interact effectively with others by utilising hand gestures based on technologies tensor flow, object detection, open cv, labelling
Limitation:	environmental conditions such as low light intensity and an unmanaged backdrop, which reduce detection accuracy.

References

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