1.A Comprehensive Review on Indian Sign Language for Deaf and Dumb People

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In sign language, hand gestures are one of the nonverbal modes used. It is most commonly used by deaf and dumb people who have hearing or speech problems to communicate with other deaf and dumb people or non-deaf people. It is also a piece of software that demonstrates a system prototype capable of automatically recognizing sign language, allowing deaf and dumb people to communicate more effectively with one another and with the general public. Dumb people are permitted to refuse normal communication with other members of society. Ordinary people find it difficult to understand and communicate with them. Deaf and Dumb people must communicate with an interpreter or some form of visual communication. Visual communication is notoriously difficult to learn, and a translator will not always be accessible. understand. The deaf and dumb community's principal mode of communication is sign language. Because the average person does not understand the syntax or meaning of many of the gestures used in sign language, it is mostly utilized by the families of the deaf and dumb. Keywords: Deaf and Dumb, Visual Communication, Disability, Machine learning, Indian Sign Language, Sign Language Recognition, Gestures.

Advantage : Automatically recognizing sign language .
Disadvantage : Difficult to understand normal people .

2.Hand Sign Language Detection Using Machine Learning

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Millions of people around the world suffer from hearing disability.
This large number demonstrates the importance of developing a sign language recognition system converting sign language to text for sign language to become clearer to understand without a translator. CNN Algorithm is proposed based on Sign Language. Sign Language may be a language within which we tend to create use of hand movements and gestures to communicate with other people who are chiefly deaf and dumb.

Advantage : No need translator to translate the sign language .
Disadvantage : In real life it is difficult to implement.

3.Sign Language Recognition using Deep Learning

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Millions of people with speech and hearing impairments communicate with sign languages every day. For hearingimpaired people, gesture recognition is a natural way of communicating, much like voice recognition is for most people. In this study, we look at the issue of translating/converting sign language to text and propose a better solution based on machine learning techniques. We want to establish a system that hearing-impaired people may utilise in their everyday lives to promote communication and collaboration between hearing-impaired people and people who aren't trained in American Sign Language (ASL). To develop a deep learning model for the ASL dataset, we'll use a technique called Transfer Learning in combination with Data Augmentation.
Keywords: Sign language,machine leaning, Transfer learning, ASL, Inception v3

Advantage : Easy for American Sign Language (ASL) using people
Disadvantage : Only American Sign Language (ASL) detect.

4.Audio to Indian Sign Language Translator

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This project's primary purpose is to bridge the gap between deaf and hearing persons, which will benefit those with hearing impairments who employ a simple and effective way of sign language. Sign language is a visual language used by the deaf community. It employs body language, hand gestures, and facial expressions. Indian Sign Language is one of the most significant and commonly utilised modes of communication for individuals with speech and hearing difficulties. This web application facilitates communication for deaf and speech-impaired individuals. The primary focus of these new web application and natural language processing technologies is the conversion of spoken or written language into sign language. In this web application, users can record their speech using a microphone or text as input utilising NLP-based speech recognition. If the video is missing from the database, the word is spit out and the associated video is displayed. This technique has made communicating with deaf individuals simple and practical.
Keywords: NLP, Speech to text, sign language translation.

Advantage : It will become simple and effective.
Disadvantage : Some time audio not clearly recognize.

5.Real-time Indian Sign Language (ISL) Recognition

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This paper presents a system which can recognise hand poses & gestures from the Indian Sign Language (ISL) in real-time using grid-based features. This system attempts to bridge the communication gap between the hearing and speech impaired and the rest of the society. The existing solutions either provide relatively low accuracy or do not work in real-time. This system provides good results on both the parameters. It can identify 33 hand poses and some gestures from the ISL. Sign Language is captured from a smartphone camera and its frames are transmitted to a remote server for processing. The use of any external hardware (such as gloves or the Microsoft Kinect sensor) is avoided, making it user-friendly. Techniques such as Face detection, Object stabilisation and Skin Colour Segmentation are used for hand detection and tracking. The image is further subjected to a Grid-based Feature Extraction technique which represents the hand's pose in the form of a Feature Vector. Hand poses are then classified using the -k-Nearest Neighbours algorithm. On the other hand, for gesture classification, the motion and intermediate hand poses observation sequences are fed to Hidden Markov Model chains corresponding to the 12 pre-selected gestures defined in ISL. Using this methodology, the system is able to achieve an accuracy of 99.7% for static hand poses, and an accuracy of 97.23% for gesture recognition.

Advantage : The method gives high accuracy and work in real time.
Disadvantage : Only 33 hand poses and and some gestures are identify.

6.INDIAN SIGN LANGUAGE DETECTION USING ARTIFICIAL INTELLIGENCE

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In the real of human computer interaction, sign language detection has emerged as one of the most significant study fields. Deep learning and machine learning can also be utilized to help with this problem. This may be quite useful in talking with others for the deaf and dumb. Physically challenged persons can convey their thoughts and emotions through sign language. The Indian sign language dataset has been subjected to eight machine learning approaches: SVM, Random forest, KNN, Decision tree, Logistic regression, XgBoost, LightGBM, Na□ ve byas and one deep learning approaches: CNN. The dataset is also subjected to pre-trained model □ ssd_mobilnet_v2_fpnlite_320x320_coco17_tpu-8□ for real time detection of Indian sign language. Furthermore, the study intends to use comparative analysis of performance to achieve its goals to make the selection of relevant prediction techniques easier.

Advantage : Deep learning and machine learning was used it will give more effective.
Disadvantage : It is difficult to use both Deep Learning and Machine Learning.

7.INDIAN SIGN LANGUAGE TO TEXT CONVERSION IN REAL-TIME USING MACHINE LEARNING

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Before language as we know it today existed, correspondence between individual people was emblematic and comprised of the utilization of hand signs. Sign language is one of the oldest and most natural form of language for communication. In our community today, contact with hearing impaired (deaf/mute) persons is a major challenge. This can be attributed to the fact that their method of communication (sign language or hand gestures at community level) requires an intermediary at all levels. We have thought of a constant strategy utilizing neural organizations for fingerspelling dependent on Indian gesture-based communication. In our technique, the hand is first gone through a filter and after the filter is applied the hand is passed through a classifier that predicts the class of the hand motions. Our strategy provides 95.7% precision for the 26 letters of the alphabet.
Keywords □ Algorithms,Cybersecurity, Network- Security, Machine Learning.

Advantage : This method gives high accuracy.
Disadvantage : It predict the class of the hand motion.

8.Indian Sign Language Recognition Using Python

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In this paper, an Indian sign language recognition using Python program has been developed. This work was taken up by keeping in mind the difficulties that are faced by differently abled people, for instance, people who cannot speak, or those who cannot hear. The code has been written in Python and trained using various modules like Tensorflow, Keras, and operating system module (Os), OpenCv (Cv2), Numpy, and various preprocessors. The training has been done using a personally created database of symbols in Indian sign language (ISL) such as digits 0□ 9 as well as an online database from GitHub to improve accuracy. The results obtained were compiled in Anaconda 3.0 and then finally tested. This framework can help differently abled people communicate better with other individuals around them.

Advantage : The project have datasets A-Z and numbers 0-9.
Disadvantage : It have only small number of datasets.

9.Real Time Translation of Sign Language to Text

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Creating a desktop application that uses a computer webcam to capture a person signing gestures for Indian Sign Language(ISL) and translate it into corresponding text and speech in real-time. The translated language gesture is going to be non-inheritable in the text that is more converted into audio. During this manner, we tend to implement a sign language translator. To modify the detection gestures, we tend to create the use of a Convolution Neural Network (CNN). A CNN is very economical in confronting computer vision issues and is capable of work the specified options with a high degree of accuracy upon comfortable coaching. during this, we tend to reach to capture a real-time translation of the Indian language of single and double hand gestures and acknowledge the words and convert it into text. It is about converting the hand gesture of sign language to text using ML Techniques and vice versa. In this, we are going to capture a real-time translation of Indian sign language using single and double hand gestures and recognize the words and convert it into text and then to voice. If the person gives a speech as input it is first converted to text and then it displays the suitable sign as output and vice versa.

Advantage : Single and double hand gestures are recognized.
Disadvantage : Convolution Neural Network (CNN) very economical.

10.Generating an Audio and Text for Indian Sign Language

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Every normal people have the ability to observe and respond to the environment. Nearby are several unlucky persons who doesn□ t encompass this principal blessing. Deaf and Dumb people have to communicate with normal people, it□ s a challenging task. Sign Language is designed for deaf and dump people to convey message to the society. Sign Language Recognition is a technology which is used to identify human gestures with the help of Arduino uno. Gesture recognition based on the corresponding gesture symbol produces an audio & text output. The flex sensor is used to recognize the hand gestures. Recognized gesture is transferred to the Arduino uno and the output is generated. By using these techniques we can implement an efficient audio & text output for physically challenged people. Our technology consists of glove which will be worn by dumb people to communicate with normal people. The proposed prototype could also serve as an intermediate between deaf and dump people and normal people in everyday life such as bank or post office. The output will be displayed using LCD and also produces a speech signal.

Advantage : Using these techniques we can implement an efficient audio & text output.
Disadvantage : Output was displayed in LCD.