LITERATURE SURVEY ON REAL-TIME COMMUNICATION SYSTEM POWERED BY AI FOR SPECIALLY ABLED

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Maximum marks	4 marks

CONVERSION OF SIGN LANGUAGE TO TEXT AND SPEECH USING MACHINE LEARNING TECHNIQUES

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This paper presents an analysis of the performance of different techniques that have been used for the conversion of sign language to text/speech format. Communication has been defined as an act of conveying intended meanings from one entity or group to another through the use of mutually understood signs and semiotic rules. Effective communication is an essential skill that enables us to understand and connect with people around us. Poor communication skills are the largest contributor to conflict in relationships. Investigating the barrier of communication between the hearing-impaired and the hearing person has led to the need of providing a means of bridging this communication gap. Academic and industrial researchers have recently been focusing on analyzing images of people and there has been a surge interest in recognizing human gestures. The aim of the study as earlier stated was to provide an unsupervised learning feature of signed hand gestures while the system returns corresponding output as text and speech. The following were the measurable methods employed in actualising the aim: 1. Segmentation of captured signed gestures of ASL as inputs 2. Feature extraction of the segmented images 3. UFL and classification of several images 4. Text and Speech synthesis of classified images.

Speech to Indian Sign Language Translator

Hemang Monga a, 1, Jatin Bhutani a , Muskan Ahuja a Nikita Maida and Himangi Pande a

The primary concern with the transition from Spoken English to Sign Language is the formation of phrases that help translate by giving the correct ASL grammar phrases. This project implements this by using the rule-based technique for building a set of phrases. Each sentence is converted into tokens, and then for each token, we identify the part of speech with which it binds, after which specific actions are taken. All the words from Spoken English, which are not a part of ASL Gloss, are removed. Then proper nouns are outputted in a different format to display sign language, and other words are

processed according to various rules such as verb correction, etc. Each proper noun is stored as alphabets separated by a hyphen, and each alphabet is shown as a sign on display. For Example, Mumbai (name of the city) is stored as M-U-M-B-A-I, and India, in a similar manner, will be stored as I-ND-I-A, corresponding to the use of conventional sign language. The system is rigid and can only lead to destructive behavior if there is a human error. The human error can be seen while creating an ASL gloss or while storing datum for each sign manually. We can see an increase in efficiency and reduction in time by using a phrase-based algorithm to eliminate repeating words, but it still takes much time in rendering, and the other issue is portability

Real time conversion of sign language to speech and prediction of gestures using Artificial Neural Network

Abey Abraham , Rohini V

In this work, a product "SMART TALK" which is a glove with flex sensors is being developed. Each gesture is being acquired accurately and those values have certain messages according to sign languages. These messages are send to the person's android device and through the android application that we have developed, the text is converted to speech which will be out through speaker. Four flex sensors are used and the data from flex sensors is taken as input for a Back-Propagation neural network to predict the gestures of future. These gestures have certain meaning and by predicting the sensor values (gesture) we are predicting the mute person's needs In our proposed system, along with the current works of detecting the gesture and convert that to speech, the prediction of mute person's needs is also been done. In this work , connection of various flex sensor outputs with their needs and trying to predict the sensor values for particular time of the day is been done. Artificial neural network is used for this prediction. Various data has been fed into the neural network as time of the day , sensor values to the input and train the neural network model to predict the sensor values for particular time of the day.

A survey paper on Speech/Audio to Sign Language Translator for Deaf People

Onkar Bidkar, Ashlesha Deshpande, Apurva Potdar Jain, Prerana Thokal

Communication is the necessary piece of life. Around 360 million individuals on the planet are experiencing hearing disability and 32 million of these are youngsters, and their life isn't however simple as it could be for human without boundary. Hard of hearing and almost deaf individuals discover hard to utilize cell phones since they can't get to data anyplace because of absence of administrations. To give advantages to hard of hearing individuals to improve their social integration and communication. This project presents the Sign Language Recognition system capable of recognizing hand gestures by using python. The proposed system having 4 modules such as: preprocessing and hand segmentation, feature extraction, sign recognition and sign to text and voice conversion. Segmentation is done by using image processing. Different features are extracted such as Eigen values and Eigen vectors which are used in recognition. The Principle Component Analysis (PCA) algorithm was used for gesture recognition & recognized gesture is converted into text and voice format.