

Development of an Automatic Translate Real-Time Voice to Sign Language Conversion for Deaf and Dumb People

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ABSTRACT

Sign Language Recognition is one of the most growing fields of research area. Many new techniques have been developed recently in this area. The sign language is mainly used for communication of deaf-dumb people. The study proposed a design and initial implementation of a robust system which can automatically translates voice into text and text to sign language animations. Sign Language Translation Systems could significantly improve deaf lives especially in communications, exchange of information and employment of machine for translation conversations from one language to another. Therefore, considering these points, it seems necessary to study the speech recognition. Usually, the voice recognition algorithms address three major challenges. The first is extracting feature form speech; second is when limited sound gallery are available for recognition; and the final challenge is to improve speaker dependent to speaker independent voice recognition. Extracting feature form speech is an important stage in the method. Different procedures are available for extracting feature form speech. One of the commonest used in speech recognition systems is Mel-Frequency Cepstral Coefficients (MFCCs). The algorithm starts with preprocessing and signal conditioning. The next is extracting feature form speech using Cepstral coefficients. Then the result sends to segmentation part. Finally, recognition part recognizes the words and then converting word recognized to facial animation. The project is still in progress and some new interesting methods are described in the current report. The system will perform the recognition process through matching the parameter set of the input speech with the stored templates to finally display the sign language in caption of video on the screen of computer/mobile etc. So, Deaf and Dumb people or students easily learn the subject through the online YouTube video.

Keywords: image processing, sign language, speech recognition, spectral parameter, Deaf Human, Sign Language Translation Systems, Humatronics, Automatic Speech Recognition