

Computer vision Based Real Time Communication for Deaf People

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ABSTRACT

Sign language is the primary language of the people who are deaf or hard of hearing and also used by them who can hear but cannot physically speak. It is a complex but complete language which involves movement of hands, facial expressions and postures of the body. Sign language is not universal. Every country has its own native sign language. Each sign language has its own rule of grammar, word orders and pronunciation. The problem arises when deaf and dumb people try to communicate using this language with the people who are unaware of this language grammar. So it becomes necessary to develop an automatic and interactive interpreter to understand them. People want something more natural. Another one is based on computer vision based gesture recognition, which involves image processing techniques. Consequently, this category faces more complexity

Keywords–Voice capture, Noise Filter, CNN algorithm, GTTA, Tensor-Flow, Image

I. INTRODUCTION

This system have Sign language is the primary language of the people who are deaf or hard of hearing and also used by them who can hear but Not able to speak. It is hard but complete language which involves movement of hands, face expressions and postures of the body. Sign language is not same on all world. Every country has its own created sign language. Every country has sign language its own rule of word orders, tens, pronunciation with grammar of huge data. Main problem start when deaf and dumb people try to Talk or get using this language with the people who are unaware of this language grammar. So it becomes necessary to develop an automatic and interactive interpreter to understand them. People want something more natural. Another one is based on computer vision based gesture recognition, which involves image processing techniques. Consequently, this category faces more complexity. Using CNN Algorithm more accurate much more easy to use it system.

II. LITERATURE SURVEY

[A] This paper is aimed to design an automatic vision based American Sign Language detection system and translation to text .Using canny edge detection algorithm the hand gestures are detected successfully for the five alphabets that has been experimented for all purpose of it use full for gesture conversation of text .It's milestone of project to will know text format how to generate create by system model.

[2] This paper tell us about Human Face is Design of Nature dose 80 Percent Unique. Every Design structure have diff .So every present a face and gesture recognition based human computer interaction (HCI).system using a single video camera. We combined get hand gesture It's more useful for purpose of combine controlled Device. We have improved system those are capture motion eye and mouth with central estimation of head.

[3] This paper discusses the development of a natural gesture user interface that tracks and recognizes in real time hand gestures based on depth data collected by a Kinect sensor. These system based on hand gesture based more ease of use it gesture verifying it more reliable with it's use on project most of filter with any background avoid of failure gesture identify. A novel algorithm is proposed to improve the scanning time in order to identify the first pixel on the hand contour within this space

[4] This paper has a new approach called Curvature of Perimeter is presented with its application as a virtual mouse. More easy of interference changes .more reinvent to goal acquired through simple way and more easy to work of project. Hand gesture recognition is a natural and intuitive way to interact with the computer.

[5] The author give a most important about defines algorithm to identify Bengali Sign Language (BdSL) for recognizing gestures basis of pronunciation. Accuracy in recognizing BdSL which is very much promising compare to other existing methods. They are less attractive in terms of computational complexity, resolution and noise.

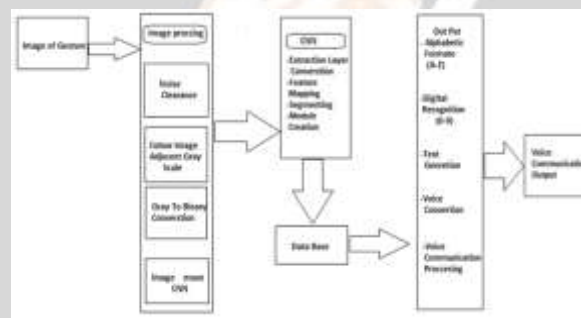
III. SYSTEM ARCHITECTURE

3.1 Sign Language Dataset:-

We use database proposed designed of ASL(American sign language) using for training. The accuracy of any machine learning project is totally depends on dataset richness and cleanness. As per our problem statement we are trying to achieve high accuracy over existing work and inventing two way communication system.

3.2 Image Processing:-

Every image is formation of RGB colors. Each and every captured image has some noise, unwanted background. Thus there is need of process those captured image before assign to our recognition module. Pre-processing unit made up of noise removal, grey image conversion, binary image conversion of input images after that feature extraction done on those samples. In future extraction five steps applied in which finding the eccentricity



3.3 Apply CNN Algorithm:-

In our system we are going to work with CNN. CNN gathers their knowledge .By detecting the sign samples and use experience train model to classify it, not from programming .CNN takes in processed sign images as input generates text.

3.4 Tensor Flow:-

Machine learning is a complex discipline. The implementation in machine learning and creation of models is so much hard and difficult than it used to be, thanks to machine learning technologies and frameworks. Such as Google's Tensor Flow that makes our task simple. It is process of acquiring data, training models, serving predictions, and refining future results

3.5 Text To Audio Conversion:-

It is a Python library and CLI tool to interface with Google Translate's text-to-Audio API. Writes spoken mp3 data to a file, a file-like object for further Audio Manipulation. There are more APIs available to convert text to Audio in python. One of most relevant APIs is the Google Text to Speech API commonly it as the GTTA API. GTTA is a very easy to use tool which converts the text entered, into audio which can be saved as a mp3 file. The GTTA API Are work on many languages including such languages are English, Hindi, Tamil, French, German and many more. They Audio can be delivered in any one of the two available audio speeds, fast or slow. However, as of the latest update, it is not possible to change the voice of the generated audio. It more important part of in API.

IV. CONCLUSION:-

In Sign Language Recognition system, we will be going to tackle the communication problem of deaf and dumb community by inventing two way communication interpreters. We are going to propose hand gesture recognition systems based on American Sign Language dataset with our Indian sign contribution using deep learning approach. System will be two way communication system by using sign to text and voice to sign conversion phenomenon.

V. FUTURE WORK:-

Our future research will be extended for further improvement in recognition accuracy and also for motion detection of body for word recognition.

VI. REFERENCES:-

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