

IDEATHON

1 IDEA 1:

1.1 INTRODUCTION

Communications between a normal person and with the person having hearing loss and dumb have constantly been a tough assignment. The work is to develop a portable device for the disabled people those who are not able to communicate with the normal persons properly. The technology development presents a solution to build up a sign language conversion system to support the individual with hearing loss and mute people. The core idea is to build up a real time embedded product for the disabled persons without handheld gloves to assist their announcement in efficient way. Similarly the speech communication by normal persons will be converted into gestures for the disabled persons for their better understanding. This device will act as a two way communication device between normal and disabled persons.

1.2 THE ENTIRE PROCESS CONTAINS THE SUBSEQUENT CONCERNS

recognizing the features distinguishing hand gesticulation. Train the collected gesticulation using Neural Network .Separating the hand movement pattern from a continuous recording of gestures .Low-level understanding for the feature patterns comprises the gestural segment
Understand a whole interpretation incorporating the concurrent features.

1.3 HAND GESTURE TO VOICE

Hand gesture conversion to voice involves images of live hand gestures taken lively with which training datasets are developed and with this dataset the gestures are recognized.

1.4 TRAINING PHASE

The process involved in the training phase is given in the following steps. Training dataset is created by capturing different hand gestures through high resolution camera. For each gesture minimum of ten images are captured. The captured images are de-noised using median filter. For better training, hand gesture alone is segmented by removing the background information. Skin

color based segmentation ie. RGB and YCbCr color transformation is used for segmenting the hand gesture alone. Feed forward neural networks with 200 hidden layers is used to train the dataset. In this prototype design a minimum of 10 gestures were recognized, so the network consists of 10 outputs. Number of Training epochs is 58 epochs with 0.84sec.

1.5 TESTING PHASE

In this phase the trained system in the previous phase is used reconditioning the gestures. In real time gesture, a dumb person live gesture is captured. This captured image has gone through the filtering and segmentation process and then it is sent to the classifier network. If the gesture matches with dataset by the testing phase then text output of the corresponding gesture is displayed on the screen of the handheld device.

2 IDEA 2:

2.1 INTRODUCTION

Gesture is a non-verbal means of communication. It refers to expressing an idea using position, orientation or movement of a body part. Gesture recognition is the mathematical interpretation of orientation or motion of human body by a computational system. In this project, the words expressed by hand gestures by the speech and hearing impaired are converted into verbal means of communication. The translated output is displayed on a screen and “spoken” on a speaker.

2.2 IMPLEMENTATION

Sign Language is the well-structured code, which uses hand gestures instead of sound to convey meaning, simultaneously combining hand shapes, orientations and movement of the hands. Communicative hand glove is an electronic device that can translate sign language into speech and text in order to make the communication possible between the deaf and/or mute with the general public. This technology has been used in a variety of application areas, which demands accurate interpretation of sign language. In this project, the words/letters conveyed by the disabled person are displayed on a screen and also spoken on a speaker. The project is divided into two parts: 1) Data acquisition from the flex sensors 2) Processing the acquired data and giving

corresponding output on the screen and speaker. Data acquisition is done using Flex sensors mounted on the Hand glove. Next, the analog signals obtained from the flex sensors are converted into digital. The digital signals are processed and compared with the predefined values. If the values match, the corresponding letter is returned. The paper is organized as follows. The previous projects and papers related to this paper are described in section II. Description of the hardware and software components used in the project is done in section III. Section IV has the system architecture of the project.

3 IDEA 3:

3.1 INTRODUCTION

Dumb people are usually face some problems on normal communication with other people in society. It has been observed that they sometimes find it difficult to interact with normal people with their gestures. Because people with hearing problems or deaf people cannot speak like normal people, they have to depend on a kind of visual communication in most cases. To overcome these problems, we have proposed a system that uses cameras to capture and convert videos of hand gestures from dumb people who turn into speech for understanding normal people.

3.2 IMPLEMENTATION

To implement a system for recognizing sign language hand configurations as described which will additionally provide the facility to each individual to define and upload his own sign language into the system since every country or even regional group uses its own set of signs.

To develop a tool which will help deaf people in communication. To develop a Sign language, can be translated into text or sound based on images, videos. Signs can be converted to Speech so that there is a two - way communication.

3.2 PRODUCT FUNCTION

It's a Desktop application. User will start video from camera. User will be able to register different signs for further recognition using camera. When user will start recognition activity and give various hand gestures in front of camera, sign will be detected and speech will be produced to announce detected sign.

