SPRINT -1

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| DATE | 21 October 2022 |
| TEAM ID | PNT2022TMID30496 |
| PROJECT NAME | Real time communication system powered by AI specially abled |

**Real-Time Communication System Powered By AI For Specially Abled**

In our society, we have people with disabilities. The technology is developing day by day but no significant developments are undertaken for the betterment of these people. Communications between deaf-mute and a normal person has always been a challenging task. It is very difficult for mute people to convey their message to normal people. Since normal people are not trained on hand sign language. In emergency times conveying their message is very difficult. The human hand has remained a popular choice to convey information in situations where other forms like speech cannot be used. Voice Conversion System with Hand Gesture Recognition and translation will be very useful to have a proper conversation between a normal person and an impaired person in any language.

The project aims to develop a system that converts the sign language into a human hearing voice in the desired language to convey a message to normal people, as well as convert speech into understandable sign language for the deaf and dumb. We are making use of a convolution neural network to create a model that is trained on different hand gestures. An app is built which uses this model. This app enables deaf and dumb people to convey their information using signs which get converted to human-understandable language and speech is given as output

**Pre-Requisites**

1. To complete this project, you must require the following software’s,  concepts, and packages

·        **Anaconda (IDLE / Spyder / PyCharm)(Python 3.7):**

1. o   [**Link**](https://www.anaconda.com/products/individual)

·        Computer Vision

* + [**Link**](https://opencv-python-tutroals.readthedocs.io/en/latest/py_tutorials/py_setup/py_table_of_contents_setup/py_table_of_contents_setup.html)

·       Flask Concepts

·     [**Link**](https://www.tutorialspoint.com/flask/index.htm)

* 1. Python Packages
  2. **Tensorflow**- This package is used as backend support to Keras
  3. **Keras**-This package is used for building Neural Network layers
  4. **OpenCV**-This package is used for image processing
  5. **Flask**- To build a web application

If you are using anaconda navigator, follow the below steps to download the required packages:

·        Open anaconda prompt as administrator.

·        Type**"pip install tensorflow==1.14.0”**and click enter.

·        Type **"pip install keras=2.2.4”**and click enter.

·        Type **"pip install opencv-python”** and click enter.

·        Type **“pip install imutils”**and click enter.

·        Type **"pip install flask”**and click enter.

**Project Structure**

This is the project structure which needs to be followed for building Conversation Engine

### Data Collection

In this, we will be collecting data for building our project. We will be creating two folders one for training and the other for testing. Images present in the training folder will be used for building the model and the testing images will be used for validating our model.

**Create Train And Test Folders**

**Step1:**Create Train and Test folders with each folder having folders with images of different hand signs. A minimum of 100 images needs to be present in each category folder to get the maximum no of features.

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Dataset can also be downloaded from the reference provided