Project Design Phase-II
Solution Requirements (Functional & Non-functional)

Date	03 October 2022
Team ID	PNT2022TMID10160
Project Name	Project – Real Time Communication System Powered by AI for Specially Abled
Maximum Marks	4 Marks

Functional Requirements:

- Here, Mobile along with Camera is presented.
- Deaf/Dumb is the person, who does the hand sign gestures to communicate.
- Normal Person is the passive user of the mobile application.

The System requirements that are required are specified below:

- Deaf/Dumb person should be able to perform a hand signs that represents number or letters.
- Deaf/Dumb person should be able to perform a sign, where group of words forms a sentence.
- Deaf person should be able to check the translation of sign to text output.
- Dumb person should be able to understand the conversion of text into voice command inputs.
- Normal user should be able to understand the corresponding information conveyed by disabled through sign language.

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

Hardware Requirements	**Software Requirements**
Web Camera – (720 x 576 pixels minimum)	Operating System platform – Android or IOS
Processor – 1Ghz or above	MySQL Database, Python
RAM – 128 MB or above	AdaBoost Face detector
Hard disk – At least 256 MB free	HTML,CSS, JavaScript and NodeJS
Speaker with a sensitivity of 87-88 DB	MediaPipe framework

Default Operation:

- User perform hand sign action to the camera to detect the gestures.
- System analyses the sign done by the user.
- Once analysis is done, then the respected hand signs is shown as a text output and also through voice.

Unexpected Operations:

- Application indicates that user's hand sign is not within the frame or in Region of Interest (ROI).

1. User of the app shows the hand sign towards the camera.
2. Application shows that sign is not within ROI.
3. Still user should make sure to present his/her sign within frame.
4. At last, Application finally detect the hand sign.

- **Hand Signs are not recognized**

1. Except the signs that are trained and included in the dataset, the application will never detect the sign.
2. User perform the hand sign and see that after 60ms, the concerned letter occupy in the space of text.

- **Speech/Voice Assistant**

Speech assistant is to be implemented in order to convert the output text into voice.