

**Project Design Phase-II**  
**Functional Requirement Template**

Date	21 October 2022
Team ID	PNT2022TMID47183
Project Name	Project – Real -Time Communication System Powered By AI For Specially Abled
Maximum Marks	2 Marks

## **Functional Requirements:**

- Here , **Desktop along with Camera is presented as black box.**
- Deaf/Dumb is the person, who will **show different signs based on the type of information being conveyed.**
- **Normal Person is the passive user** of the desktop.

The **System requirements** that are required are specified below,

- Deaf/Dumb person should be able to **perform a sign that represents digit/number.**
- Deaf/Dumb person should be able to **perform a sign that represents a character.**
- Deaf/Dumb person should be able to **perform a sign , where group of characters forms a word.**
- Deaf/Dumb person should be able to **perform a sign, where group of words forms a sentence.**
- Especially Deaf person should be able to **see the translation of sign to text format.**
- Dumb person should be able to **understand the conversion of text into voice mode.**
- **Normal user should be able to understand the corresponding information conveyed by disabled through sign language.**

<b>Hardware Requirements</b>	<b>Software Requirements</b>
<b>Web Camera – (320x260 minimum)</b>	<b>Operating System platform – Windows 7 and greater</b>
<b>Processor – 400 MHz or above</b>	<b>MySQL Database</b>
<b>RAM – 512 MB or above</b>	<b>AdaBoost Face detector</b>
<b>Hard disk – atleast 256 MB free</b>	<b>HTML,CSS,JavaScript and Angular for Webpage</b>
<b>Speaker with a sensitivity of 87-88 DB</b>	<b>MediaPipe framework</b>

## **Default Operation:**

- User of the app **faces the camera and perform the concerned hand sign to convey information.**
- System/Desktop **analyses the sign made by the user.**
- Once analysis gets finished, then the **concerned signs together are shown as a text based and also through voice.**

## **Unexpected Operations:**

- **Desktop indicates that user's hand sign is not within the frame or in Region of Interest( ROI).**
  1. User of the app **show the hand sign towards the camera.**
  2. Desktop shows that **sign is not within ROI.**
  3. Still User , make sure to present his/her sign within frame.
  4. At last, **Desktop finally detect the hand sign.**
- **Signs are not recognized**
  1. **Excepts the signs that are trained and included in the dataset, the Desktop will never detect the sign rather than this.**
  2. User Performs the sign and see that after 50ms, **the concerned letter occupy in the space of text.**
- **Speech/Voice assistant is implemented**

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