

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

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| Date          | 03 October 2022  |
| Team ID       | PNT2022TMID08592   |
| Project Name  | Real-Time Communication System Powered by AI for Specially Abled |
| Maximum Marks | 4 Marks  |

**Functional Requirements:**

- Here, the Desktop along with the 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 people especially should be able to see the translation of signs to text format.
- Dumb person should be able to understand the conversion of text into voice mode.
- Normal users should be able to understand the corresponding information conveyed by disabled through sign language.

**Default Operation:**

- Users of the app face 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 through voice.

**Unexpected Operations:**

- Desktop indicates that the user's hand sign is not within the frame or in Region of Interest (ROI).
  1. Users of the app show the hand sign towards the camera.
  2. Desktop shows that the sign is not within ROI.
  3. Still User, make sure to present his/her sign within frame.
  4. At last, Desktop finally detects 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 sees that after 50ms, the concerned letter occupies the space of text.
- Speech/Voice assistant is implemented

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