**Project Design Phase-II**

**Functional Requirement Template**

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| Date | 17 Nov 2022 |
| Team ID | PNT2022TMID03551 |
| Project Name | Project – **Real -Time Communication System**  **Powered By AI For Specially Abled** |

**Functional**

**Requirements:**

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| **Hardware Requirements** | **Software 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.**

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

**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).

* User of the app **show the hand sign towards the camera**.
* Desktop shows that **sign is not within ROI**.
* Still User , make sure to present his/her sign within frame.
* At last, **Desktop finally detect the hand sign**.

#  Signs are not recognized

* **Excepts the signs that are trained and included in the dataset, the Desktop will never detect the sign rather than this.**
* 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 .**