PROJECT DESIGN PHASE - II

Solution Requirements (Functional & Non-functional)

Date	19 October 2022
Team ID	PNT2022TMID04383
Project Name	Real-time communication system powered by AI for specially abled
Maximum Marks	2 Marks

FUNCTIONAL REQUIREMENTS:

- System is presented as black box
- Hearing impaired is the person that performs the signs
- Normal hearing is the passive user of the system

The **System Requirements** can be specified below,

- Perform a sign that represents digit/number.
- Perform a sign that represents a character.
- Perform a sign, where group of characters forms a word.
- Perform a sign, where group of words forms a sentence.
- Able to see the translation of sign to text format.
- Able to understand the conversion of text into voice mode.
- Able to understand the corresponding information conveyed by disabled through sign language.

NORMAL FLOW

1. The user performs the alphabet letters in front of the camera.
2. The performed sign is analysed by the system.
3. The system displays the meaning of the sign as text and speech.

ALTERNATIVE FLOWS

- **Desktop shows that the user's hand sign is not in the area of interest or within the frame.**
    1. User shows the hand sign towards the camera.
    2. Desktop shows that sign is not within the frame.
    3. User make sure to present his/her sign within the frame.
    4. Finally, Desktop detect the hand sign**.**

- **Signs are not recognized**
    1. The Desktop will never identify a sign other than those that are trained and included in the dataset.
    2. User Performs the sign and see that after 50ms, the concerned letter occupy in the space of text.

- **Speech/Voice assistant is implemented**

    ➢ In order to convert the output text into voice.

NON-FUNCTIONAL RERUIREMENT:

Usability:

- All age groups may easily utilise the camera, which records all expressions, including hand and facial gestures.

Reliability:

- The system is quite reliable and, if properly maintained, can operate for a very long time.

Performance:

- The system is very reliable and efficient because it is cost-effective.

Availability:

- When we train the model for all sign languages, the answer is applicable to all sign languages. As a result, it is used by all countries.