Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	03 October 2022
Team ID	PNT2022TMID46520
Project Name	Project – Real time communication system powered by AI for specially abled

Technical Architecture:

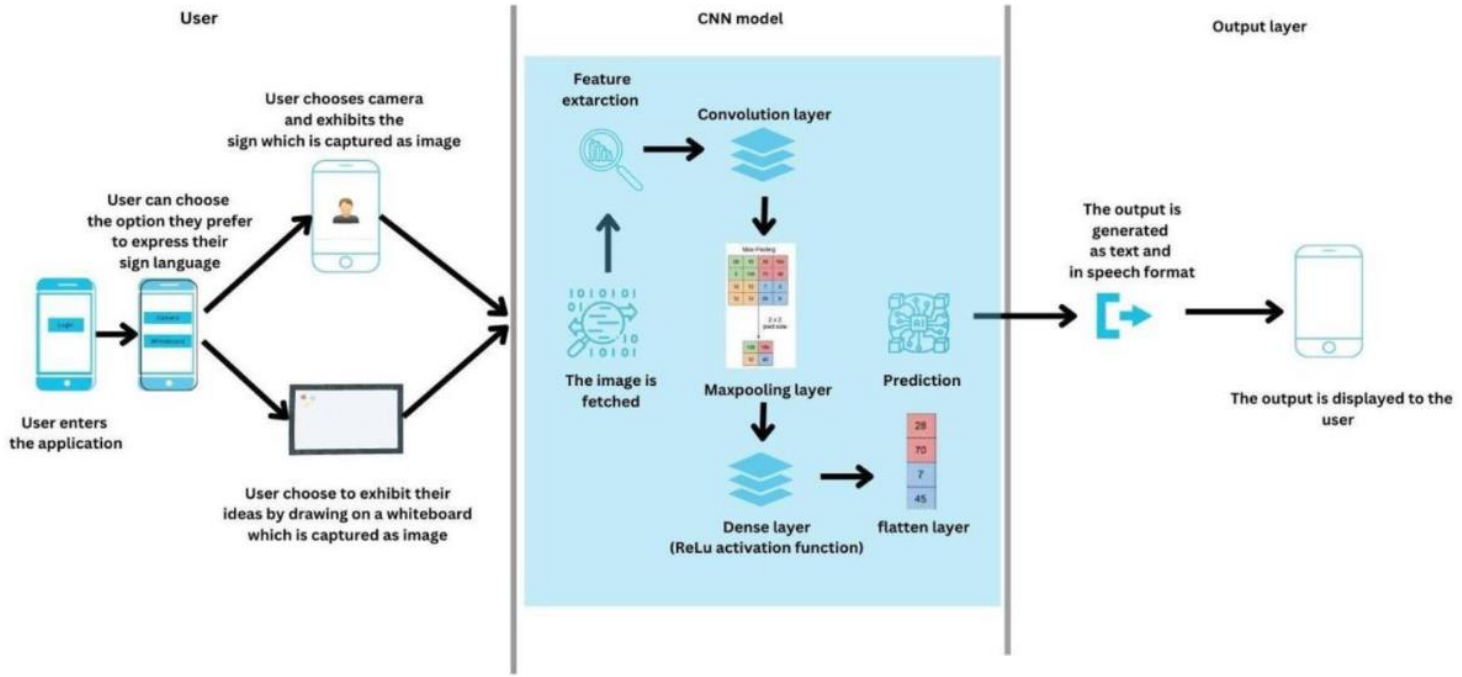

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	User Interface provides options for the user to either upload a photo or turn on live camera for the prediction of sign language .	HTML, CSS, JavaScript/React JS
2.	Application Logic-1	The user input is taken and passed on to the model for feature extraction and prediction of the sign language.	Python
3.	Application Logic-2	The output is produced in speech format using the IBM Watson Text To Speech service.	IBM Watson TTS service.
4.	Database	The user login details and credentials are stored and processed using MySQL database.	MySQL.
5.	Cloud Database	We use IBM cloud data storage to store and manage user data.	IBM DB2, IBM Cloudant etc.
6.	Machine Learning Model	Our Machine learning model is used to predict sign language with precision and accuracy.	Hand gesture recognition, etc
7.	Infrastructure (Server / Cloud)	Our application is deployed using IBM Watson services.	IBM watson services.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Flask web application, Google colab.	● HTML ● CSS ● Javascript ● Flask ● Google colab
2.	Security Implementations	User login credentials and other details will be secured Using MD5 encryption and IAM Controls.	MD5, Encryptions, IAM Controls, OWASP etc.
3.	Scalable Architecture	This project enables the developer to add more templates and it also paves the path to train the model in-case if there is a need to train the model with new sign language.	Technology used Machine learning.
4.	Availability	This is an open source application and it is available to all users and it manage all the customers without any network glitch.	Technology used Flask web application.
5.	Performance	This app will quickly upload and process the images because it predicts the sign language using CNN model and it gives high accuracy.	Technology used.