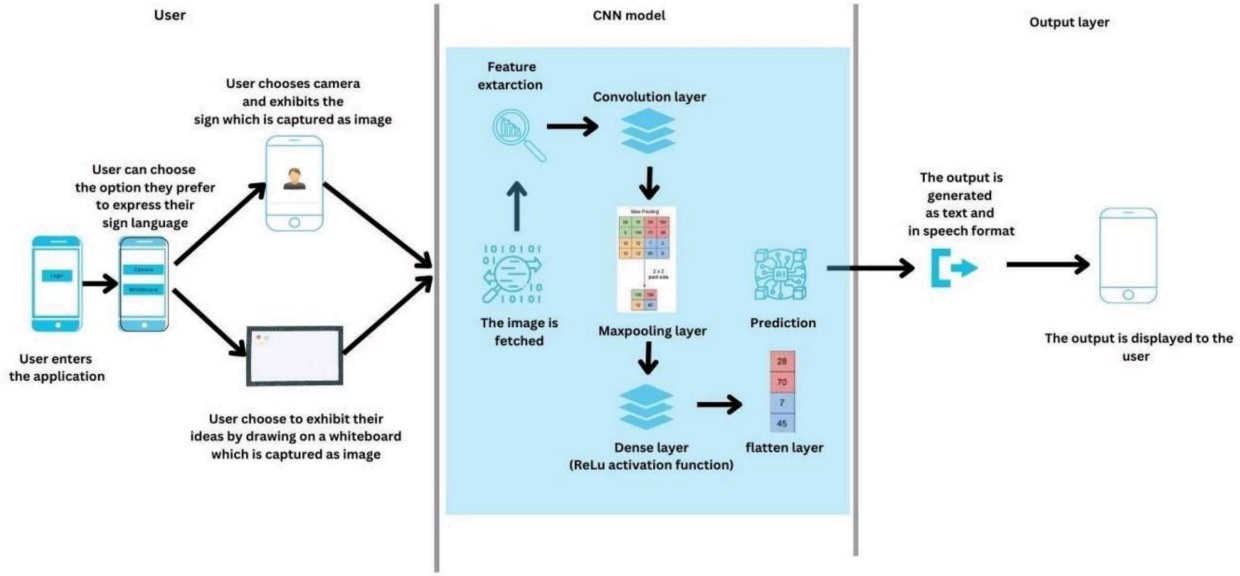
Project Design Phase-II

Technology Stack (Architecture & Stack)

Team ID	PNT2022TMID05177
Project Name	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 (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