PROJECT DESIGN PHASE-II
Technology Stack (Architecture & Stack)

Team ID	PNT2022TMID36394
Project Name	Real-Time Communication System Powered by AI for Specially Abled
Maximum Marks	4 Marks

Technical Architecture:

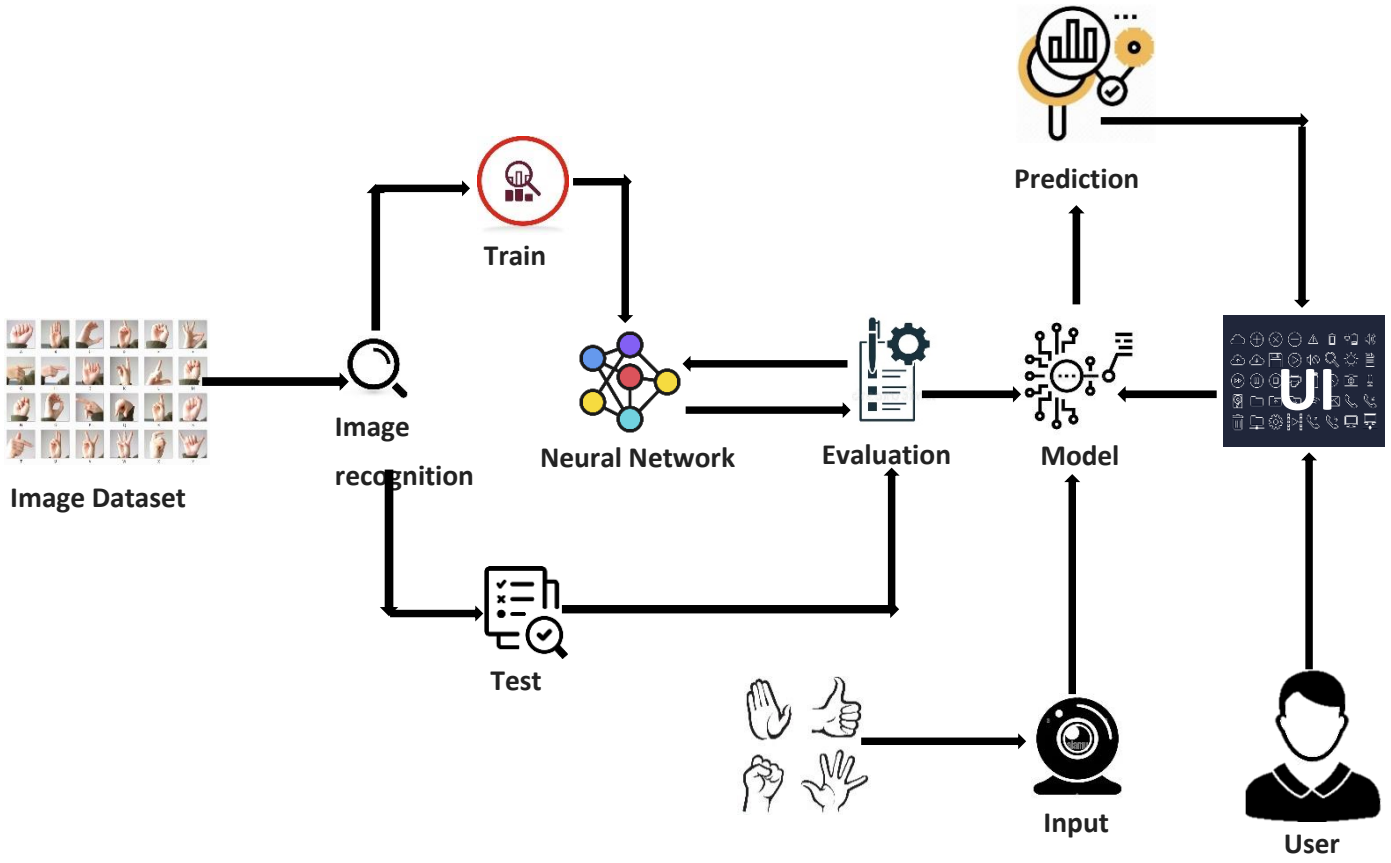

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	By using Web UI and Mobile app user interacts with the application	HTML, CSS, JavaScript etc.
2.	Application Logic-1	Getting the Hand Gesture Images dataset	Python
3.	Application Logic-2	Analysing the application and the representation of the hand gestures	IBM Watson, CNN
4.	Application Logic-3	Getting audio as input data	IBM Watson Assistant
5.	Database	Data Type, Configurations etc.	NoSQL
6.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant
7.	File Storage	Received hand gesture movements and the audio speech is stored in the cloud	IBM Block Storage or Other Storage Service or Local Filesystem
8.	CNN	Purpose of CNN is used for the understanding of sign to human readable language and vice-versa	CNN, Object detection model, NLP
9.	Machine Learning Model	AI-Machine Learning model is used for the identification of hand gestures recognition, Sign language and vice-versa	Object Recognition Model, CNN and NLP for voice data and hand gestures
10.	Infrastructure (Server / Cloud)	Deploying the AI and CNN model using flask in the web application of cloud server	Python Flask

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Frameworks which are used	TensorFlow, RNN, Pytorch
2.	Security Implementations	List all the security / access controls implemented, use of firewalls etc.	Firewall and some security related to software.
3.	Scalable Architecture	Justify the scalability of architecture (3 – tier, Micro-services)	3-tier architecture
4.	Availability	Availability of application	Image recognition, gesture recognition, text and voice recognition.
5.	Performance	Design consideration for the performance of the application (number of requests per sec, use of Cache)	Using CNN, Machine Learning for conversion which the performance will be good