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

Date	03 October 2022
Team ID	PNT2022TMID26243
Project Name	Real-Time Communication System Powered By AI For Specially Abled
Maximum Marks	4 Marks

Technical Architecture:

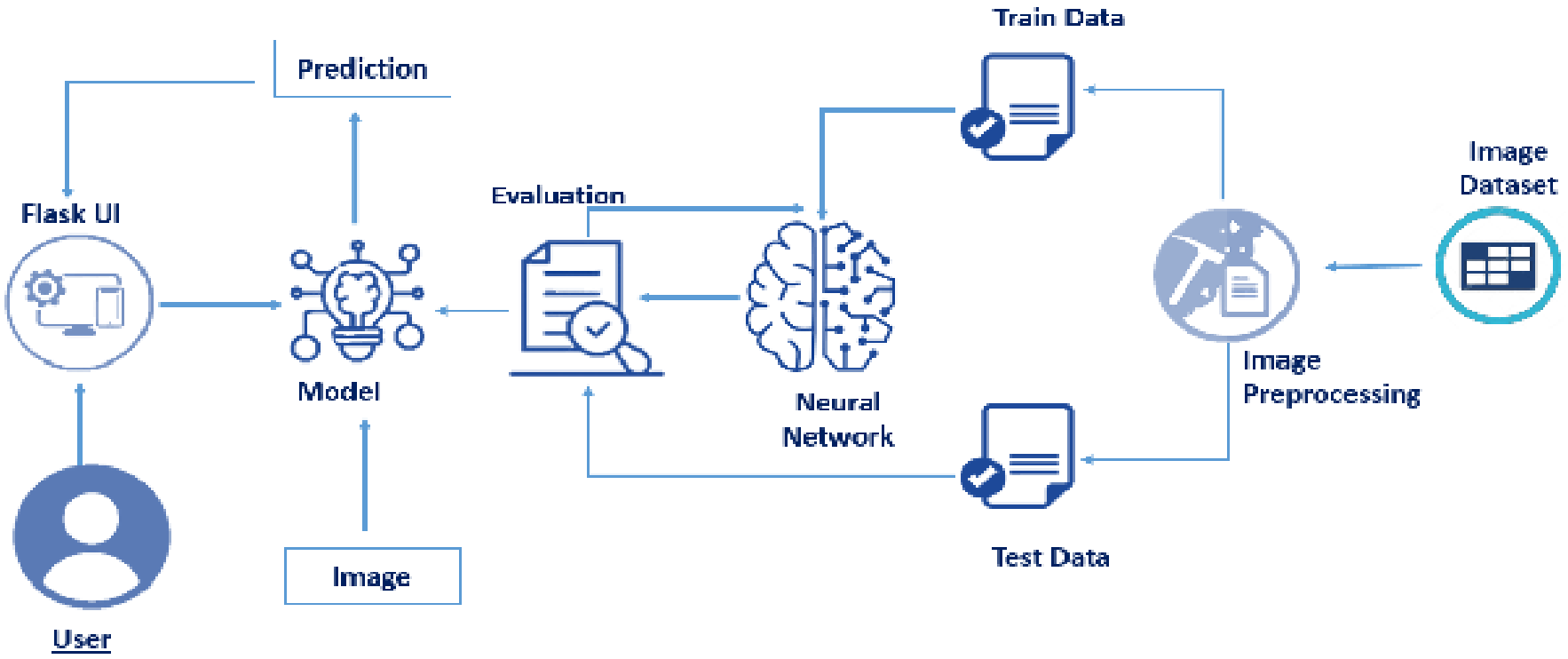

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	user interacts with Mobile Application	HTML, Flask UI
2.	Application Logic-1 Hand Gesture Image Dataset	Collecting the dataset for Hand Gesture Preparing Dashboard with Predefined hand gestures	Kaggle & IBM Login
3.	Application Logic-2 Image Pre-processing	Image Pre-processing steps to create train and test data set	IBM Watson , Python, OpenCV
4.	Application Logic-3	CNN Model Building	IBM Watson Python
5.	Database	Data Type – Images of Hand Gestures	MYSQL
6.	Cloud Database	Database Service on Cloud	--
7.	File Storage	File storage requirements for hand gesture images and also for audio	IBM Block Storage , Local Filesystem
8.	External API-1	focus on enabling fast experimentation	Keras API
9.	External API-2	an approachable, highly-productive interface for solving machine learning problems	Tensor flow 2
10.	External API-3	Text to voice converter	IBM Watson TTS /Text to Speech /Rev.ai
11.	Machine Learning Model	Including required layers in CNN model	Tensor Flow 2, IBM watson
12.	Infrastructure (Server / Cloud)	Application Deployment on Local System & Cloud	Local & IBM Cloud & Watsan Studio Service

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	List the open-source frameworks used	Keras, Tensor Flow
2.	Security Implementations	Only registered users are allowed to access the application.	--
3.	Scalable Architecture	Allows admin to add more templates for sign language	MYSQL
4.	Availability	Always this application is available to user as it is using open source framework	Keras, Tensor Flow
5.	Performance	CNN model get the image & identifies the sign language and gives the result with high accuracy	Deep learning