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

Date	29 October 2022
Team ID	PNT2022TMID03937
Project Name	Real time communication system powered by AI for specially disabled
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2

Example: Real time communication system powered by AI for specially disabled

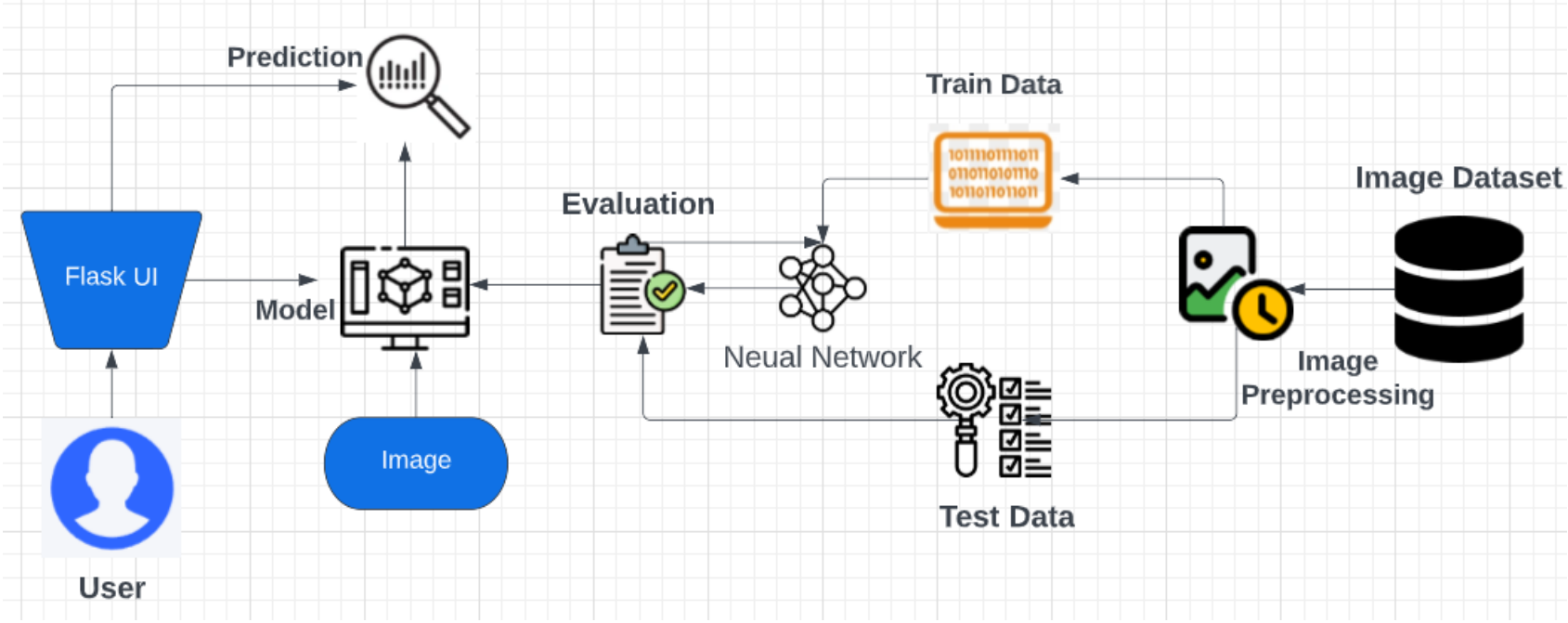

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Android app as a application or Web UI.	Flask UI , HTML , Python
2.	Image Preprocessing	Image preprocessing are the steps taken to format images before they are used by model training and inference. This includes, but is not limited to, resizing, orienting, and color corrections.	Python – keras (or) OpenCV (or) Pytorch
3.	AI Model	This model is built using CNN to recognize gestures to produce the output.	Convolutional Neural Networks (CNN)
4.	Language Translator	Text is converted into user desired language.	Google’s language translation API
5.	Database	Database Service on Cloud	IBM DB2, IBM Cloud etc.
6.	Machine Learning Model	Trained and tested model	Object Recognition Model, etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Used for image Pre-processing	Keras, Tensorflow
2.	Application Programming Interfaces (APIs)	For interfacing with cloud services	Google's language translation API – googletrans.
3.	Security Implementation	Encrypting data while transferring between app and cloud database.	SHA-256
4.	Scalable Architecture	The architecture is divided into 3-tire: Web UI, Cloud Service APIs and Database.	Flask for Web UI, Google Cloud service APIs, IBM Watson DB2 database.
5.	Performance	It was found that the proposed model showed a better performance than pre-trained models in terms of performance evaluation criteria.	Convolutional Neural Network (CNN) for the AI Model.