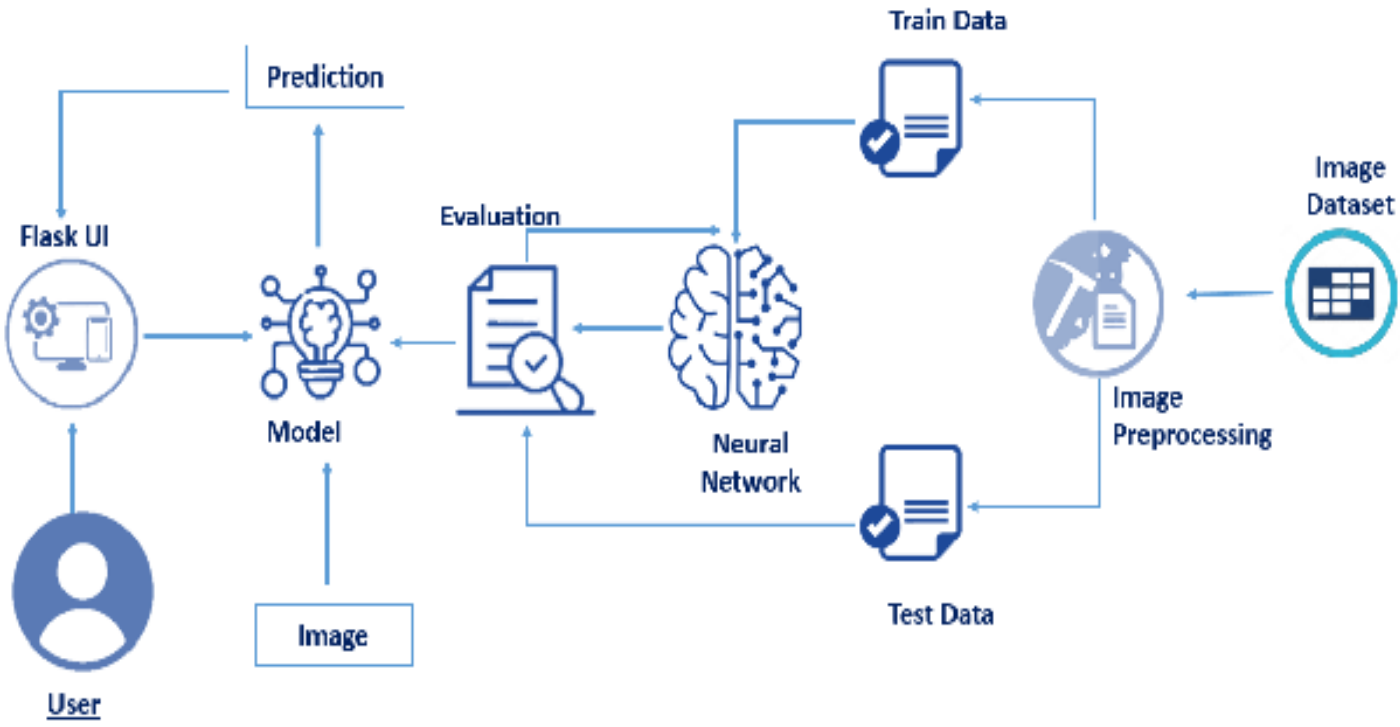
Project Design Phase-II

Technology Stack (Architecture & Stack)

Date:	3 NOVEMBER 2022
Team ID:	PNT2022TMID48285
Project Name:	Real Time Communication System Powered by AI for Specially Abled
Maximum Marks :	4 Marks

Technical Architecture:

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



Guidelines:

1. Include all the processes (As an application logic / Technology Block)

2. Provide infrastructural demarcation (Local / Cloud)

3. Indicate external interfaces (third party API's etc.)

4. Indicate Data Storage components / services

5. Indicate interface to machine learning models (if applicable)

Table-1: Components & Technologies:

S.no	Component	Description	Technology
1.	User Interface	The User interface is the point of human computer interaction and communication in device.	• Python flask • HTML • CSS/JavaScript
2.	Flask UI	Flask user interface components let you interact with the users that use your site and gather information.	Using the cloud, it can be executed.
3.	Models	Support Vector Machine (SVM) is subsequently applied to classify our gesture image dataset.	Machine Learning.
4.	Image	Image processing is used to extract signs from the image using neural network.	• ANN • CNN • Open CV
5.	Evaluate data	Aims to estimate the generalization accuracy of a model on future(unseen/out-of-sample)data.	NLP.
6.	Unstructured data	Unstructured data is a conglomeration of many varied types of data that are sorted in their native formats.	Natural Language Processing(NLP).
7.	Structured data	Typically categorized as quantitative data is highly organized and easily decipherable by machine learning algorithms.	Machine language and artificial intelligence tools.
8.	File Storage	File Storage requirements to store the trained model in order to use it whenever it is needed.	IBM Block Storage or Cloud object.
9.	ML Service	Provides a full range of tools and services so that you can build, train, and deploy Machine Learning models.	Python, IBM Watson
10.	IBM Cloud	IBM Watson Studio empowers data scientists, developers and analysts to build, run and manage AI models and optimize decisions anywhere on IBM Cloud Pak for Data.	IBM Cloud and Watson Studio services.

11.	Dataset	First prototype of this system used a dataset of 24 static signs from the Panamanian Manual Alphabet.	AI Technology.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	**Open-Source Frameworks**	Helps you implement best Practices for data automation, model tracking , performance monitoring, and model retraining.	TensorFlow
2.	**Security Implementations**	It operates the largest national network of professional monitoring centers and offers a six-month, money-back guarantee to customers.	ADT type of coding.
3.	**Scalable Architecture**	Three-tier architecture is a well-established software application architecture that organizes applications into three logical and physical computing tiers: the data tier, the presentation tier and the application tier.	3-Tier Architecture
4.	**Availability**	The system will be made ubiquitous so that it is available everywhere.	Web Application.
5.	**Performance**	The model will be fine-tuned on strike a balance between accuracy vs performance.	Optimization of code and trained model.