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

Date	19 NOVEMBER 2022
Team ID	PNT2022TMID48155
Project Name	Project - 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

Real-Time Communication System Powered by AI for Specially Abled

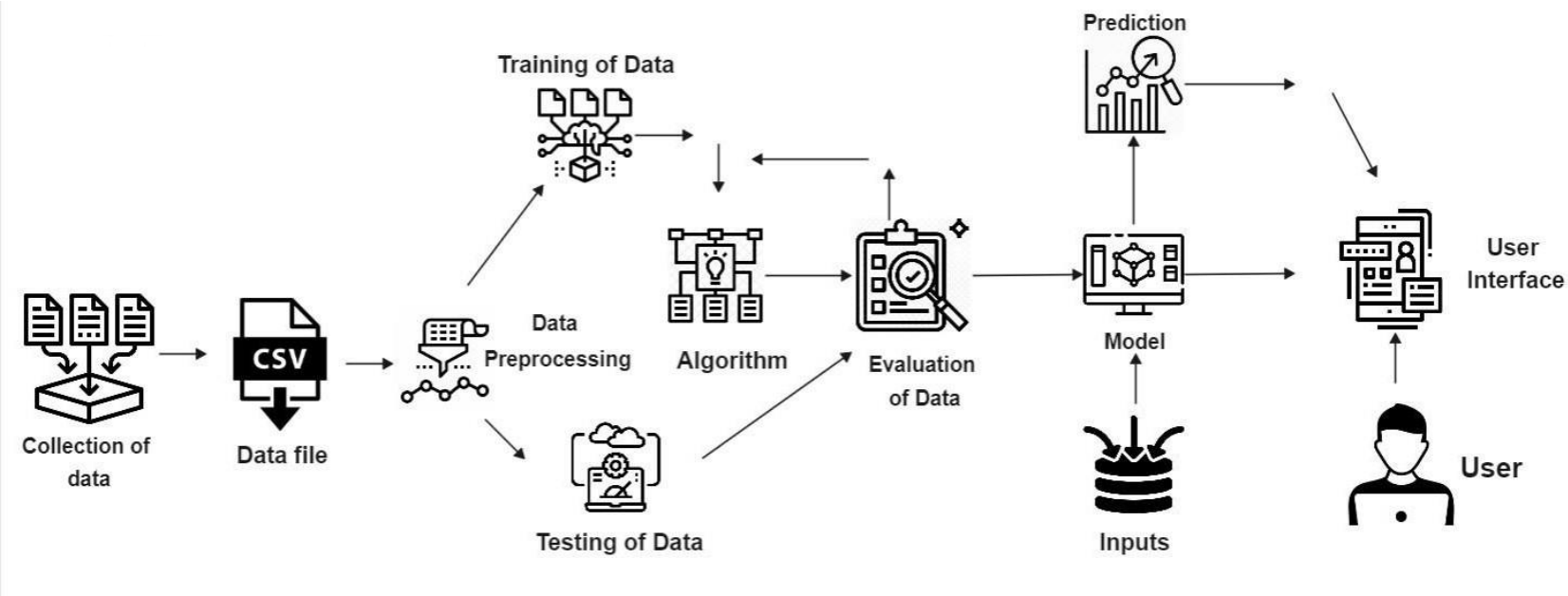

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	Collection of data	Collection of All types of hand signs photos and videos from various resources	Can be collected from the internet
2.	Data File	Convert the collected data into a CSV file	Online Converter

3.	Data Pre-processing	Data pre-processing is the process of transforming raw data into a useful, understandable format.	Sampling Data
4.	Training	Training data is the data you use to train an algorithm or machine learning model to predict the outcome you design your model to predict.	NLP[Natural Language Processing]
5.	Testing	Testing data is where the pre-processed data model will be tested	NLP[Natural Language Processing]
6.	Evaluation	Records the result of generalization accuracy of the proposed model	
7.	Inputs	Where the samples inputs of hand signs can be provided through the camera	Image processing
8.	Model	Algorithms like Deep ASL are applied to classify the given image dataset	Deep learning
9.	Prediction	The attributes extracted from the images are examined and predictions are made in order to convert the sign language to the corresponding Voice	Deep learning
10.	User	Deaf and Dumb people can communicate with normal people with the user-interface application by their sign language and this will be converted into voice mode at the other end.	AI Techniques

Table 2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Bots and various other AI tools have been successful It is possible for people with disabilities to live at ease.	AI techniques like self-moving robots and other software systems
2.	Security Implementations	The authentication process uses the username/password pair of the user or the OTP sent to the mobile number registered by the user.	SHA-1, Encryptions, IAM Controls
3.	Scalable Architecture	The user might get toll free number for any queries and the video tutorial will act as there guide. Customer support is enabled in the application 24*7.	The presentation layer, Application layer, and Data Layer modularity, Docker
4.	Availability	When the application sever downs, the load balancer transfers requests to other machines that are available.	Key performance indicators (KPI)
5.	Performance	The application performs efficiently under a heavy load of translation requests without any significant reduction in the conversion accuracy	Number of requests per minute, the accuracy of the translation (signlanguage to speech & text to signlanguage)