

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

Date	03 October 2022
Team ID	PNT2022TMID18207
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

Example: Order processing during pandemics for offline mode

Reference: <https://developer.ibm.com/patterns/ai-powered-backend-system-for-order-processing-during-pandemics/>

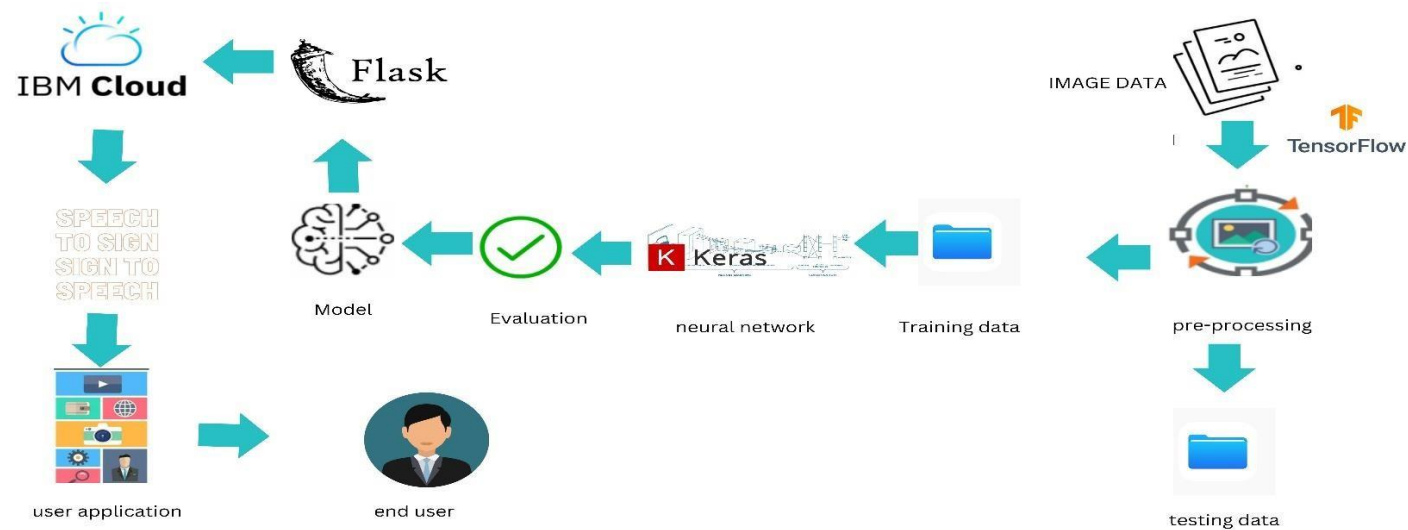


Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	Web deployment	An api which is used to deploy application in servers	Flask Api
2.	Preprocessing	Preprocessing of image data	Image adata augumentor
3.	Cloud service	Deployment on cloud to host application	IBM Watson
4.	Deep learning model	To build models for classifying sign languages	Tenorflow,keras api
5.	Train test split	Splitting data into train and test	SK learn package
6.	Computer vision	Capturing video frames	Open cv2
7.	File Storage	File storage requirements	IBM Block Storage or Other Storage Service or Local Filesystem
8.	Dataset	Datas required to train model	Kaggle ,keras api
9.	Speech to text,sign to speech	Convert one form to another	NLP from waston cloud.
10.	Process file data	To work with csv files	pandas
11.	Modify image data	To modify the image specifications As numerical matrix	numpy.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Helps to build models,visualize the features extracted and to improvise the model	tensorflow
2.	Security Implementations	Highly secured type of deployment in web services	SSH

S.No	Characteristics	Description	Technology
3.	Scalable Architecture	Transfer learning approaches can be used to scale it for different model building	Keras
4.	Availability	Always available hosted through cloud application	IBM cloud
5.	Performance	Trained models requires less computation to predict outputs and it will be fine tuned further to suit the deployment requirements	Model tuning

References:

<https://c4model.com/>

<https://developer.ibm.com/patterns/online-order-processing-system-during-pandemic/>

<https://www.ibm.com/cloud/architecture>

<https://aws.amazon.com/architecture>

<https://medium.com/the-internal-startup/how-to-draw-useful-technical-architecture-diagrams-2d20c9fda90d>