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

Date	15 October 2022
Team ID	PNT2022TMID02287
Project Name	Project - Real-Time Communication System Powered by AI for Specially Abled
Maximum Marks	4 Marks

Technical Architecture:

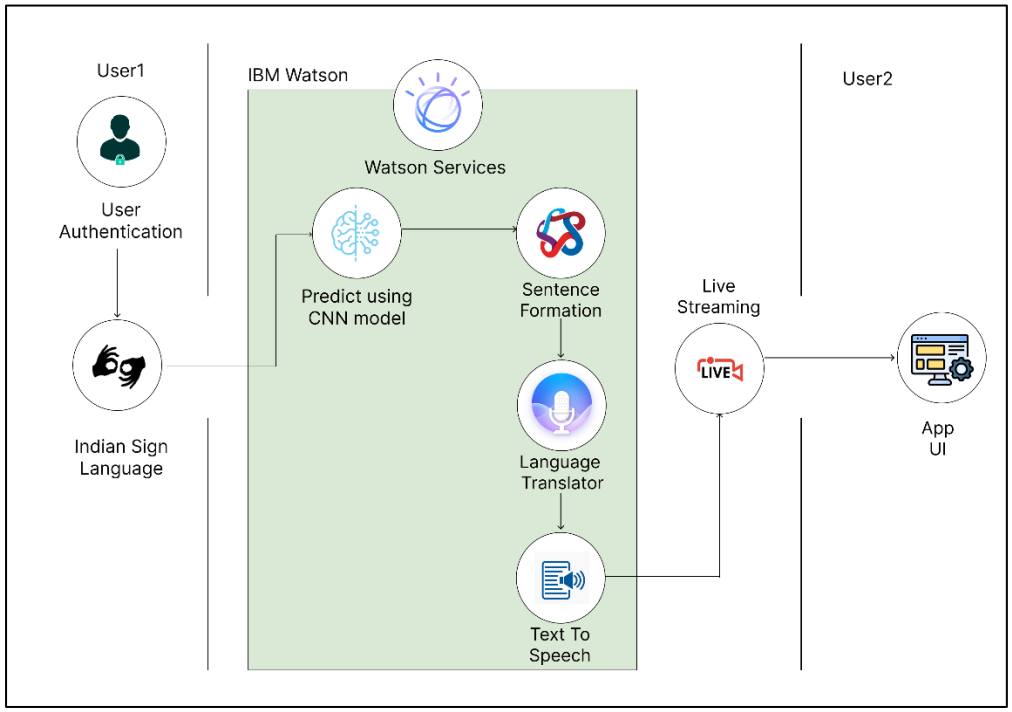

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	WEB UI	HTML, CSS, Python (Flask).
2.	Application Logic-1	Logic for a process in the application	Python
3.	Application Logic-2	Logic for a process in the application	IBM Watson STT service
4.	Application Logic-3	Logic for a process in the application	IBM Watson Assistant
5.	Database	Data Type, Configurations etc.	NoSQL
6.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant, etc
7.	File Storage	File storage requirements	IBM Block Storage or Other Storage Service or Local Filesystem
8.	Machine Learning	To predict the Indian Sign Language for the specially abled	Convolutional Neural Network
9.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: Cloud Server Configuration:	Local, Cloud Foundry, Kubernetes, etc.

Table-2: Application Characteristics:

S. No	Characteristics	Description	Technology
1.	Open-Source Frameworks	The open-source frameworks used	TensorFlow, Flask, OpenCV
2.	Security Implementations	The security / access controls implemented, use of firewalls etc.	e.g. SHA-256, Encryptions, IAM Controls, OWASP etc.
3.	Scalable Architecture	Justify the scalability of architecture (3 – tier, Micro-services)	Each tier can be developed separately without impacting other tiers, HTML, CSS and JavaScript for UI, Python for application tier and IBM DB2 for cloud storage and processing

S. No	Characteristics	Description	Technology
4.	Availability	Justify the availability of application (e.g. use of load balancers, distributed servers etc.)	The application is distributed, with the help of pay as you go model available in cloud
5.	Performance	Design consideration for the performance of the application (number of requests per sec, use of Cache, use of CDN's) etc.	Cache memory is useful for accessing user's previous sign requests, authentication approval etc.

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