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

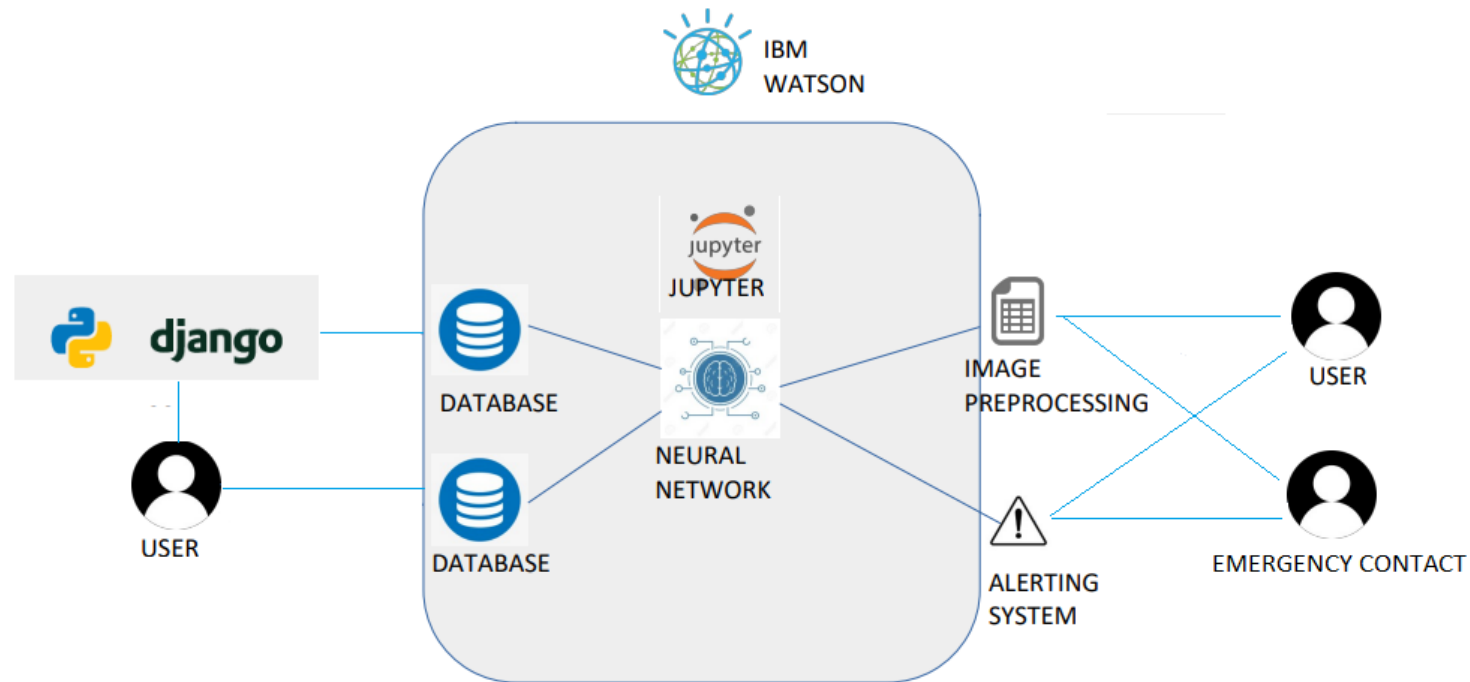| Date	03 October 2022
Team ID	PNT2022TMID52960
Project Name	Real-Time Communication System Powered by AI for the Specially Abled
Maximum Marks	4 Marks

Technical Architecture:

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	How user interacts with application e.g. Web UI, Mobile App	HTML, CSS, JavaScript / Angular Js / React Js etc.
2.	Application Logic-1	User Login and sign Up	Java / Python
3.	Application Logic-2	Camera detect hand gestures	IBM Watson Studio
4.	Application Logic-3	Convert Sign Language into Text/Speech	IBM Watson Assistant
5.	Database	Data Type, Configurations stored in cloud of user	IBM Cloudant
6.	Cloud Database	User Data and preferences	IBM DB2, IBM Cloudant etc.
7.	External API-1	Google text to speech Conversion	Google Text-to-Speech
8.	Machine Learning Model	Convert Sign Language to Text/Speech or vice versa	Object Recognition Model, etc.
9.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud System to enable faster sign language conversion and efficient storage of user data	Local, Cloud Foundry, Kubernetes, etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Website/App development	Django/Angular/React
2.	Security Implementations	Encryption techniques to transmit data securely	e.g. SHA-256, Encryptions, IAM Controls, OWASP etc.
3.	Scalable Architecture	User can shift between ISL and ASL input/output	IBM Cloud
4.	Availability	Available in various text languages to be user friendly	IBM Watson Assistant
5.	Performance	CNN running in cloud server reduces overload of the Phone's computing capability	IBM Watson Studio