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

Date	03 October 2022
Team ID	PNT2022TMID14967
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. Collecting key points from mediapipe holistic and collect a buch of data from keypoints.
2. Build and Train the LSTM(Long Short Term Memory model)
3. API like Google Speech ,Amazon API or any other third party API is used to convert text into Speech
4. The Model is integrated into the Web UI by the developer (Admin)
5. The model is finalized and it will continue the testing.
6. Speech Recognistion of the model to the user.

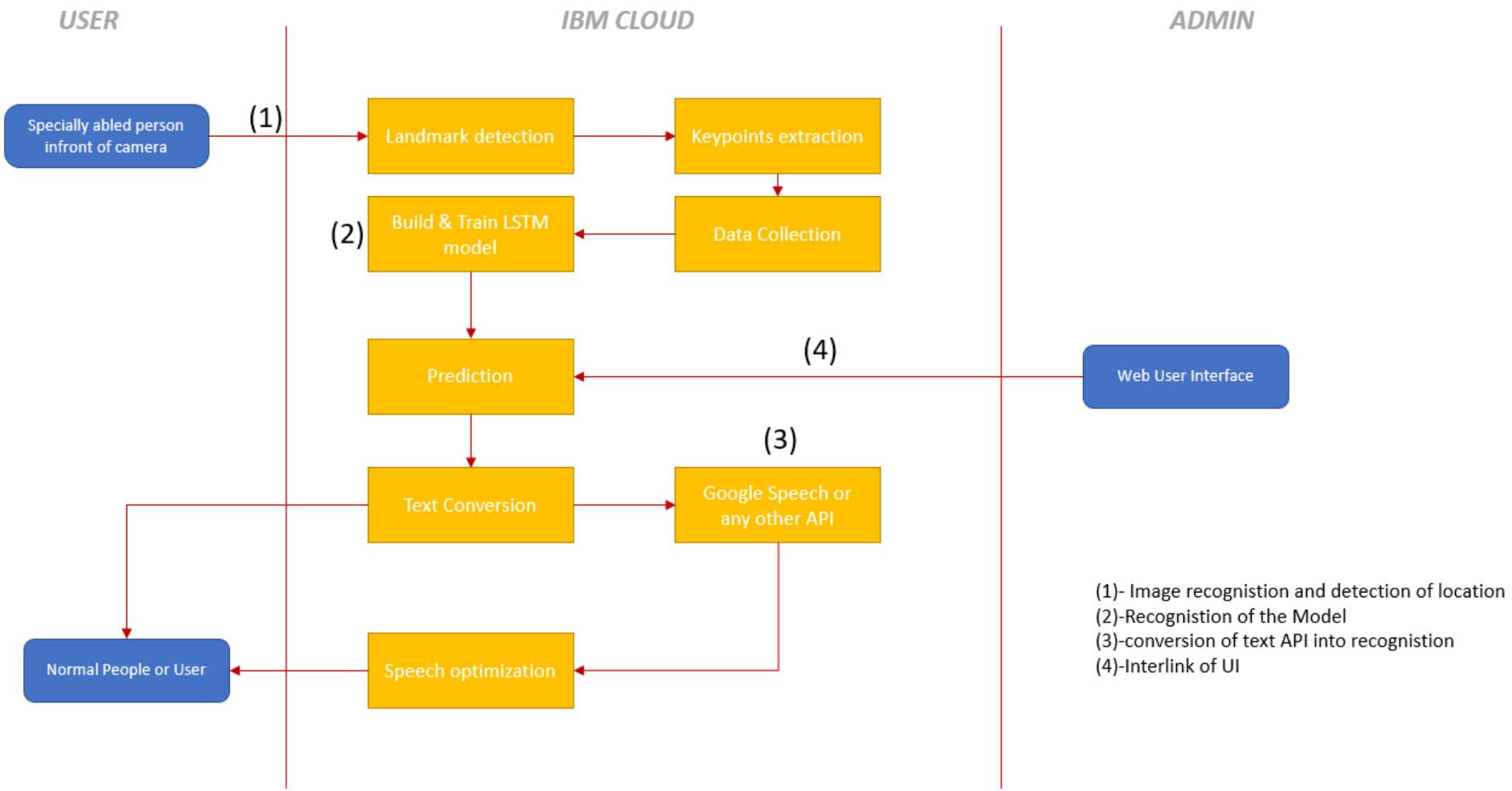
USER
IBM CLOUD
ADMIN
Specially abled person infront of camera
(1)
Landmark detection
Keypoints extraction
Data Collection
(2)
Build & Train LSTM model
Prediction
(4)
Web User Interface
(3)
Text Conversion
Google Speech or any other API
Normal People or User
Speech optimization
(1)- Image recognistion and detection of location
(2)-Recognistion of the Model
(3)-conversion of text API into recognistion
(4)-Interlink of UI

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Web User Interface	Flask
2.	Application Logic-1	We start by collecting key points from mediapipe holistic and collect a bunch of data from keypoints We then build a LSTM(Long Short term Memory) model and train with our stored data which helps us to detect action with a number of frames. Once training is done, we can use this model for real time hand gesture detection and simultaneously convert the gesture to speech using OpenCV.	Python
3.	External API-1	Convert text into Speech	Google Speech ApI or any other API
4.	Machine Learning Model	This Model predict recognise the sign language	Sign language recognistion model.
5.	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	Used to Data visualizaton	Python,Jupyter
2.	Scalable Architecture	Client Layer – The client web interface Data Layer – Database storage and Processing	HTML,Python,CSS,IBM Cloud
3.	Availability	Use of IBM Cloud	IBM Cloud
4.	Performance	Accurate prediction of signs,Less prediction of time	No Techology used