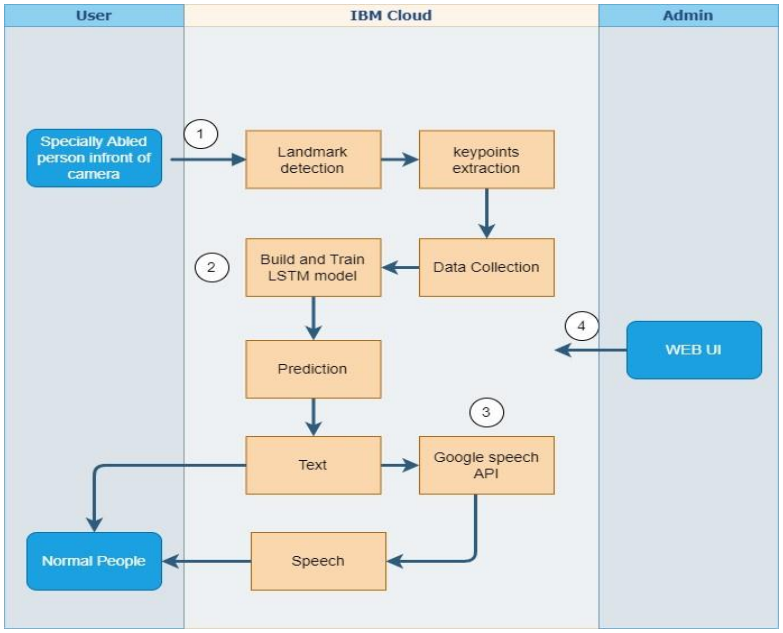
Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	14 October 2022
Team ID	PNT2022TMID25415
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 bunch of data from keypoints
2. Build and Train the LSTM Model
3. Third party API Like Google Speech API used to convert the text into Speech
4. The Model is integrated to WEB UI by Developer(Admin)

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Web UI	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 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 the text into speech	Google speech API
4.	Machine Learning Model	This Model predict and recognize the sign language	Sign Language Recognition Model

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Python , Jupyter	Python , Jupyter
2.	Scalable Architecture	Client layer – The client web interface Data layer – Dataset storage and processing Application layer – Model building and trainnig	HTML, CSS, Python, IBM Cloud
3.	Availability	Use of IBM cloud	IBM Cloud
4.	Performance	Accurate prediction of signs, Less prediction time	