Reporting No:1 Week No:1 From :15/05/2025 To :17/05/2025

College ID: 22IT121

Project Title: Speech-to-Phoneme Normalization with CMU Dictionary and TTS

WEEKLY REPORT

Work done in last week (Attach supporting Documents):

15/05/2025 Thursday

9:30 – 11:30	Installed and configured essential Python libraries: `speech_recognition`, `pyttsx3`, `nltk`, `sounddevice`, and `scipy`.
12:00– 2:30	Set up audio recording function using `sounddevice` and `scipy.io.wavfile` to save spoken input as `.wav` files.
3:00– 5:00	Implemented speech-to-text transcription using Google Web Speech API through the `speech_recognition` library.

16/05/2025 Friday

9:30 – 11:30	Downloaded and explored the CMU Pronouncing Dictionary using NLTK for phoneme extraction.
12:00– 2:30	Developed a function to retrieve US English phonemes from the CMU dictionary based on recognized words.

3:00– 5:00	Tested phoneme extraction for various words and handled cases where words were not found in the dictionary.

17/05/2025 Saturday

9:30 – 11:30	Integrated `pyttsx3` to synthesize recognized words using a US English voice setting.
12:00– 2:30	Created a pipeline to combine all modules: recording → transcribing → phoneme extraction → text-to-speech synthesis.
3:00– 5:00	Tested the full pipeline, ensured robustness for edge cases (e.g., unclear input, unrecognized words).

Reason for incomplete work:

1. N/A

Plans for next week:

1. Add GUI using Tkinter or PyQt for easier interaction
2. Improve error handling and support for full-sentence phoneme extraction
3. Integrate logging for transcription accuracy and error tracing

References:

1. Python documentation: `speech_recognition`, `pyttsx3`, `nltk`

2. YouTube tutorials on TTS and STT systems

Signature of External Guide **Signature of Internal Guide**

Student Id: 22IT121
Student Name: VYOM MUKESHKUMAR PATEL