**University Living Campus Hiring Assignment**

Mohammad Kaif (2022PAI7313)

M.Tech. (CSE-AI )

NSUT- Delhi

**Task :-** (Task 2nd ) : Voice-to-Text System Development.

**Objective:-** The primary objective of this project is to design and implement a robust voice-to-text (speech recognition) system capable of accurately transcribing spoken language into textual form. The system should be able to process audio input from various sources and environments, converting it into written text with high accuracy and efficiency.

**Solution Approach:-**

**Step 1-**First, ensure you have the necessary libraries installed. Numpy, PyAudio, and other dependencies.

pip install whisper

pip install pyaudio

pip install numpy

**Step 2- .**Install whisper (Whisper is an automatic speech recognition (ASR) system trained on multilingual and multitask supervised data collected from the web).by using Command “pip install whisper” on Terminal. And import Whisper to the jupyter notebook.

**Step 3-** Load the base Model of whisper (as it is Suitable for Given Task)**.**

**Step 4**-We'll give permission to Accessing System microphone and by using the PyAudio library to capture audio from the microphone in real-time.

**Step 5**- Trim the audio to 30 second time as Whisper base model only recognize audio file up to 30 second.

And parameters are

* Set the audio format to 16-bit PCM using pyaudio.(paInt16)
* Set the number of audio channels to 1 (mono).
* Set the sample rate to 16000 Hz.
* Set the buffer size (chunk size) to 1024

**Step 6**- We'll process the audio frames and transcribe them using the Whisper model.

**Step 7**- Now with the help Command Code, Whsiper Model start recording audio from System Microphone and Key interrupt will stop the recording. And after Recording it start generating transcript.

**Step 8**- Check the Result and Accuracy of the given result (Transcript).

**Input:-** Realtime Audio Recording by User.

**Output:-** Text (Transcript based on Realtime Audio Input)

**Software Used:-** Platform – Jupyter Notebook (for python code)

Model - Whisper by Open AI (pre train multilingual model)