Voice2sentiment: An End – to – End System for Speech Emotion Recognition and Textual Sentiment Analysis
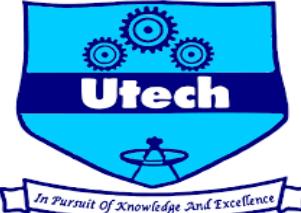
UNDER THE GUIDANCE OF

Prof. Sonali Das

Department of B.Tech in Computer Science Engineering

(Specialization in Artificial Intelligence and Machine Learning)

Supreme Knowledge Foundation Group of Institutions, Hooghly, West Bengal

Under
Maulana Abul Kalam Azad University of Technology
Kolkata, West Bengal, India.

SUBJECT : PROJECT -I
SUBJECT CODE : PROJ-AIML781

TEAM MEMBER	UNIVERSITY ROLL NUMBER
Uma Saha	25330822021
Jamima Khatun	25330822009
Debolina Samanta	25330822008
Aditya Choudhary	25330822026

GANTT Chart of the Final Year Project for 7th Semester

Particulars of the Task	week										
	1	2	3	4	5	6	7	8	9	10	11
Estimated date of completion	1-4th July	21-27th July	28th July-3rd Aug	4-10th Aug	11-17th Aug	18-24th Aug	25-31st Aug	1-7th Sept	8-12th Sept	15-21st Sept	22nd Sept-5th Nov
Topic selection & group Formation	██										
Problem definition & objectives +Literature review+ PPT1 &report submission		██	██	██							
Custom Dataset collection(audio-Hindi, Bengali, English language) + PPT2 submission				██	██	██	██	██	██	██	██
Actual date of completion	4th July	Ongoing	Ongoing	6th Aug	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing (dataset) & 5th Nov PPT2 submit

GANTT Chart of the Final Year Project for 8th Semester

Particulars of the Task	week										
	1	2	3	4	5	6	7	8	9	10	11
Estimated date of completion	6-12 Jan	13-19 Jan	20-26 Jan	27 Jan -2 Feb	3-9 Feb	10-16 Feb	17-23 Feb	24 Feb-2 Mar	3-9 Mar	10-16 Mar	17-23 Mar
DL Model design + model training(emotion +sentiment)+hyperparameter tuning	■	■	■	■	■						
System integration (voice + text pipeline)+evaluation metrics + improvement error analysis + deployment			■	■	■	■	■	■	■		
Documentation + testing on unseen data + final refinement							■	■	■	■	■
Actual date of completion	_	_	_	_	_	_	_	_	_	_	_

ACTIVITY 1

- SUB-ACTIVITY 1: **Topic Selection & Group Formation**

Group member(s): Aditya Choudhary and Uma Saha

Work done: Selected the final year project topic, formed the project group, and aligned objectives with the mentor.

- SUB-ACTIVITY 2: **Problem Definition & Literature Review**

Group member(s):Debolina Samanta, Jamima Khatun

Work done: Defined the project objectives, conducted literature review

- SUB-ACTIVITY 3: **PPT1 & Report Submission**

Group member(s): Aditya Choudhary , Uma Saha

Work done: Prepared and submitted PPT1 & report.

ACTIVITY 2

- SUB-ACTIVITY 1: **Audio collection (Hindi, Bengali, English):**

Group member(s): Debolina Samanta (Bengali language), Jamima Khatun (Hindi language)

Work done: Collection of real time voice from transportation.

- SUB-ACTIVITY 2: **Processing of Audio collected from different source and store in database**

Group member(s): Aditya Choudhary , Uma Saha

Work done : Normalize the audio tone, remove the background noise and cut the audio in different sector and store it according to voice sentiment .

- SUB-ACTIVITY 3: **Preparing the PPT2 based on the work and Reporting it .**

Group member(s): Aditya Choudhary, Uma Saha, Debolina Samanta , Jamima Khatun.

Work done: Based on the working and reporting of work we prepared the PPT2.

COST ESTIMATION

SL NO	TASK/ACTIVITY	RESOURCE TYPE	QUANTITY/ DURATION	UNIT COST	TOTAL COST	REMARKS
1	Dataset Collection (Audio in Hindi, Bengali, English)	Data collection tools, Internet charges	2 months- 4 months	1,000	4,000	Internet + software for recording
2	Cloud / GPU for Model Training	Cloud computing (Google Colab Pro / AWS)	2 months	2,500	5,000	Used for DL training & testing
3	Software Tools	Python, Libraries (TensorFlow, PyTorch, NLP toolkits)	Open-source	0	0	Free, open-source
4	Hardware	Personal Laptop / External Hard Drive	4	15,000	60,000	Existing hardware (approximate)
5	Documentation & Printing	Paper, printing, binding	4 set	1,000	4,000	Final report + presentation
6	Miscellaneous	Communication, utilities	Lump sum	—	2,000	Unexpected expenses

FUTURE SCOPE

1. Can support more languages in future.

2. Can help in mental health by detecting stress or depression.

3. Can be used in customer care centers to detect angry customers and improve service.

4. Can help teachers by understanding student emotions in online learning.

5. Can improve human–robot interaction and make robots more friendly.

6. Can be used in virtual assistants like Alexa, Siri.