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SCHOOL OF ENGINEERING

DEPARTMENT OF AI & ML (III Year II Semester)

Application Development- web application with Natural Language Processing & IOT Explore (MR22-1CS0264)

Date: 02-01-2025

Name of the Guide	**Dr.Satyanarayana**	
Project Title	**Speech Emotion Analyzer using NLP**	
Project Title (Any Change)		
Section Name & Batch Number	**AIML-THETA** **TT-5**	
Batch Student Details	**Roll No**	**Student Name**
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Abstract Work	The **Speech Emotion Analyzer using Natural Language Processing (NLP)** is a machine learning-based system designed to detect and classify human emotions from speech. With the growing need for personalized experiences across various industries, this project aims to interpret emotions in real time, enabling applications such as mood-based product recommendations, enhanced driver safety in autonomous vehicles, and improved user interaction in customer support systems. The project employs a multi-step process starting with the analysis of audio signals. Datasets like RAVDESS and SAVEE, containing diverse emotional audio samples, are used for training and testing. Key features, such as pitch, tone, and frequency, are extracted using Python's LibROSA library. The feature extraction process standardizes audio files to uniform lengths and sampling rates, ensuring consistency and improving model performance. For emotion classification, a Convolutional Neural Network (CNN) model was implemented, outperforming alternatives like Multilayer Perceptrons and Long Short-Term Memory networks. After rigorous experimentation and tuning, the CNN achieved a validation accuracy of over 70% for emotion detection. The model successfully predicts emotions such as anger, happiness, sadness, and calmness, and is capable of distinguishing male and female voices with 100% accuracy.	

Project Guide **AD-Mentor** **AD-Incharge** **DEAN (AI -ML)**