Department of Information Technology
MINI PROJECT (2025)

Batch No. : 10

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Domain : Machine Learning using Python

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Title : Speech Emotion Recognition using LIBROSA.

ABSTRACT

This project aims to develop an effective Speech Emotion Recognition (SER) system by leveraging the capabilities of the Librosa library for audio analysis in Python. The system focuses on identifying and classifying human emotions from audio recordings using simple machine learning techniques and signal processing methods. The approach includes data collection, pre-processing, feature extraction, model training, and evaluation. Key algorithms and technologies include acoustic features like Mel Frequency Cepstral Coefficients (MFCCs), chroma features, and mel-spectrograms, alongside simpler machine learning models such as Decision Trees and Support Vector Machines (SVMs) to capture patterns in speech. Librosa is utilized for loading audio files, pre-processing, and extracting relevant features. The project's simplicity and efficiency make it distinct from existing SER systems, as it focuses on straightforward algorithms and leverages the modular and readable code of Librosa, making it both easy to implement and understand. Evaluations are conducted using standard datasets like RAVDESS to ensure robustness across diverse speakers and contexts, with metrics including accuracy, precision, recall, and F1 score. Results demonstrate that the SER system, using Librosa, achieves high accuracy and reliability, showcasing its potential for real-time emotion recognition applications.

Guide Signature **Project coordinator Signature**