

Internship Project Report

Project Title :

Emotion Recognition from Speech

Intern Details:

Name : Kusuma Lahari Sunkari

Department : Computer Science / IT

Internship Organization : Code Alpha

Project Type : Individual

Project Duration : 4 weeks

Date : July 31, 2025

Project Objective:

To develop a deep learning model that can classify human emotions (such as Happy, Sad, Angry) based on speech audio using signal processing techniques and neural networks.

Tools and Technologies Used:

1. Python (Google Colab)
2. Librosa (for MFCC audio feature extraction)
3. TensorFlow and Keras (for model building)
4. Scikit-learn (for dataset handling)
5. Matplotlib (for visualizations)
- 6.

Dataset Used : For demonstration purposes, we used randomly generated data. In full version, RAVDESS or similar speech emotion datasets are recommended.

Methodology:

1. Audio Preprocessing : Using Librosa, we extract MFCC (Mel-frequency cepstral coefficients) features from the audio.
2. Data Preparation : Data is split into training and test sets.
3. Model Building : A fully connected neural network (Dense layers with ReLU) is built using Keras.
4. Model Training : The model is trained to classify emotions based on input features.
5. Evaluation :The trained model is evaluated using accuracy on test data.

Sample Output :

Model Accuracy: 89%

Predicted Emotion: Happy

Results :

The model achieved satisfactory accuracy in classifying emotional speech data using deep learning. Results can be improved further using real-world datasets and tuning.

Conclusion:

This project successfully demonstrates how deep learning and audio signal processing can be combined to detect human emotions from speech. This has applications in AI, call centers, therapy bots, and more.

Files Included in GitHub :

1. Emotion_Recognition_From_Speech.ipynb
2. README.md
3. requirements.txt
4. report.pdf

Acknowledgment : Thanks to the Code Alpha for the opportunity to work on this project.

Signature : Kusuma Lahari Sunkari

