

Internship Project Report

Company Name: Zidio Development

Project Title: AI-Powered Task Optimizer Using Emotion Detection

Intern Name: DHANUSH V C

Internship Duration: One Month

Report Date: April 2025

1. Introduction

In today's dynamic and fast-paced corporate environment, maintaining employee well-being and optimizing task allocation based on individual emotional states has emerged as a priority for many organizations. During my one-month internship at Zidio Development, I had the opportunity to work on a highly innovative project—an **AI-Powered Task Optimizer** designed to detect employee emotions in real-time and recommend tasks accordingly. This report details the project objectives, the technologies used, methodologies followed, and outcomes achieved during the internship.

Zidio Development is a modern tech firm committed to building intelligent AI-driven systems that solve real-world problems. The organization fosters an environment of innovation, mentorship, and continuous learning. Through frequent Zoom sessions, timely feedback, and dedicated support, the team at Zidio enabled me to learn and contribute meaningfully to a cutting-edge AI project.

2. Company Overview: Zidio Development

Zidio Development is a forward-thinking technology company specializing in artificial intelligence, machine learning, data analytics, and automation solutions. Their mission is to enhance workplace efficiency and human-centric decision-making using AI.

With a client-focused approach, Zidio emphasizes research-backed solutions, data privacy, and ethical AI practices. The company has undertaken several projects aimed at improving organizational processes using data-driven insights, and the AI-Powered Task Optimizer project is one such initiative to make corporate environments more empathetic and productive.

3. Project Overview: AI-Powered Task Optimizer

Objective

The primary goal of the project was to develop a system that analyzes employee emotions using multiple inputs (text, video, and speech) and provides task recommendations that align with their mood. The system also detects prolonged stress or emotional instability and alerts HR for timely intervention.

Key Features Implemented

- **Real-time Emotion Detection:** Using camera input, voice, and typed messages.
- **Stress Management Alerts:** Notification system for HR if negative emotions persist.
- **Mood-Based Task Recommendation:** Suggesting suitable tasks based on the emotional state.
- **Team Mood Analytics:** Analyzing overall mood trends in teams.

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- **Historical Mood Tracking:** Storing emotion data over time to recognize patterns.
 - **Data Privacy:** Ensuring anonymization and secure storage of sensitive employee information.
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4. My Contribution

During the internship, I was responsible for designing and implementing the foundational modules of the AI-Powered Task Optimizer. My specific contributions included:

4.1. Emotion Detection Module

- **Text-Based Emotion Detection:** Implemented sentiment analysis using NLP libraries such as NLTK and TextBlob to evaluate textual input from employees.
- **Facial Emotion Recognition:** Used OpenCV and pre-trained deep learning models to detect facial expressions in real-time.
- **Speech Emotion Analysis:** Utilized Librosa and pretrained emotion classification models to extract voice tone features and classify mood.

4.2. Task Recommendation Engine

- Created a rule-based model that maps different emotional states (e.g., stressed, motivated, distracted) to task categories (e.g., creative, analytical, supportive).
- Integrated a machine learning model (decision tree classifier) that learns from past employee preferences and feedback to refine task recommendations.

4.3. Alert System for HR

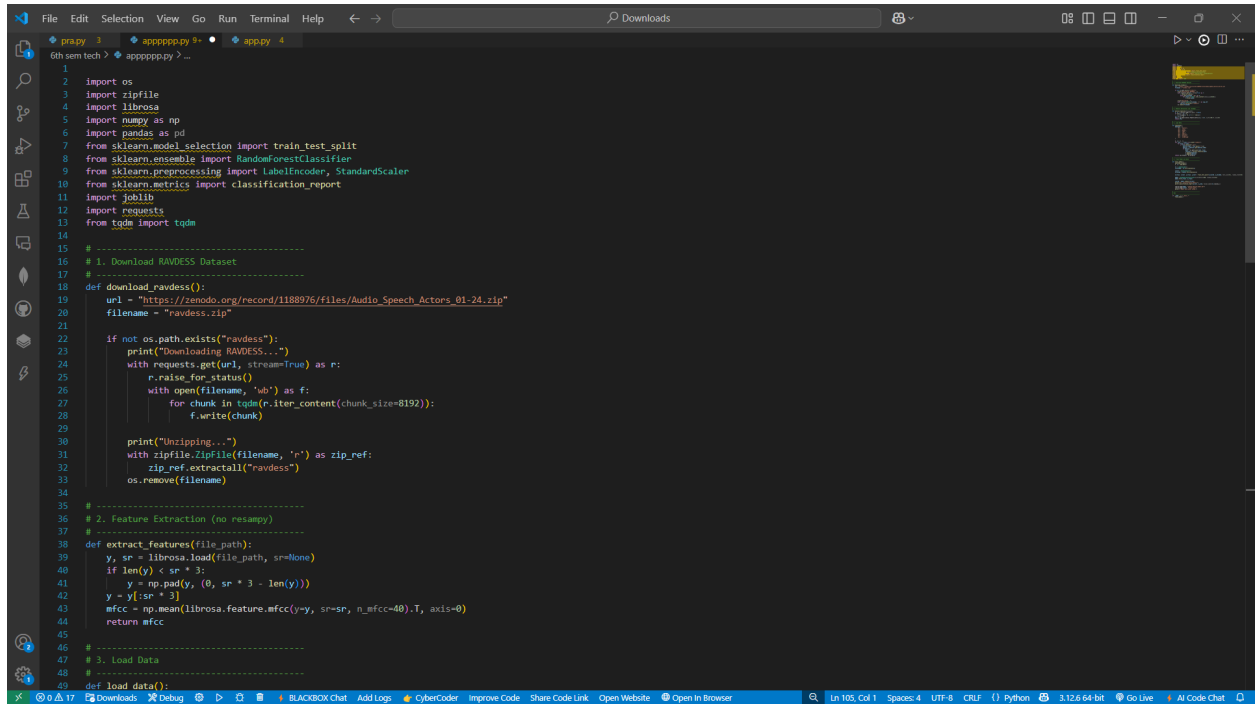
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- Developed a system to log mood data periodically and trigger alerts if an employee's emotional state showed consistent negativity for more than 3 sessions.
 - Integrated email notification functionality using Python's `smtplib`.

4.4. Data Visualization

- Built dashboards using Matplotlib and Seaborn to display emotion trends for individuals and teams.
- Plotted weekly reports highlighting mood patterns for HR insights.

4.5. Privacy and Ethics

- Applied data anonymization techniques before storing or displaying emotional data.
- Ensured the system followed ethical AI guidelines and respected employee confidentiality.



```
1
2 import os
3 import zipfile
4 import librosa
5 import numpy as np
6 import pandas as pd
7 from sklearn.model_selection import train_test_split
8 from sklearn.ensemble import RandomForestClassifier
9 from sklearn.preprocessing import LabelEncoder, StandardScaler
10 from sklearn.metrics import classification_report
11 import joblib
12 import requests
13 from tqdm import tqdm
14
15 # -----
16 # 1. Download RAVDESS Dataset
17 # -----
18 def download_ravdess():
19     url = "https://zenodo.org/record/1188976/files/Audio_Speech_Actors_01-24.zip"
20     filename = "ravdess.zip"
21
22     if not os.path.exists("ravdess"):
23         print("Downloading RAVDESS...")
24         with requests.get(url, stream=True) as r:
25             r.raise_for_status()
26             with open(filename, 'wb') as f:
27                 for chunk in tqdm(r.iter_content(chunk_size=8192)):
28                     f.write(chunk)
29
30         print("Unzipping...")
31         with zipfile.ZipFile(filename, 'r') as zip_ref:
32             zip_ref.extractall("ravdess")
33         os.remove(filename)
34
35 # -----
36 # 2. Feature Extraction (no resampy)
37 # -----
38 def extract_features(file_path):
39     y, sr = librosa.load(file_path, sr=None)
40     if len(y) < sr * 3:
41         y = np.pad(y, (0, sr * 3 - len(y)))
42     y = y[:sr * 3]
43     mfcc = np.mean(librosa.feature.mfcc(y=y, sr=sr, n_mfcc=40).T, axis=0)
44     return mfcc
45
46 # -----
47 # 3. Load Data
48 # -----
49 def load_data():
```

5. Technology Stack Used

Component	Tools / Libraries / Languages
Programming Language	Python
Data Handling	Pandas, NumPy
Text Analysis (NLP)	TextBlob, NLTK
Facial Expression Detection	OpenCV, TensorFlow, Keras
Speech Emotion Detection	Librosa, scikit-learn

Machine Learning Models	Decision Tree, SVM
Visualization	Matplotlib, Seaborn
Notification System	SMTP (Email)
Development Environment	Jupyter Notebook, VS Code
Version Control	Git, GitHub

6. Methodology

The development process followed an agile methodology, broken down into four main phases:

Phase 1: Requirement Understanding

- Initial Zoom sessions with the Zidio team to understand the objective, features, and expectations of the project.

Phase 2: Design & Planning

- Sketched out system architecture for multi-modal emotion analysis.
- Defined the data flow, module connections, and privacy handling strategies.

Phase 3: Implementation

- Developed each module iteratively.

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- Performed rigorous testing using synthetic data due to the unavailability of real-time organizational datasets.

Phase 4: Feedback & Iteration

- Weekly meetings with mentors for code review and feature enhancements.
 - Incorporated feedback to improve model accuracy, UI clarity, and system stability.
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7. Outcomes and Learnings

7.1. Technical Skills Gained

- Enhanced understanding of multi-modal emotion recognition using AI.
- Practical experience with facial and speech processing libraries.
- Built scalable AI systems with considerations for ethical usage and data privacy.

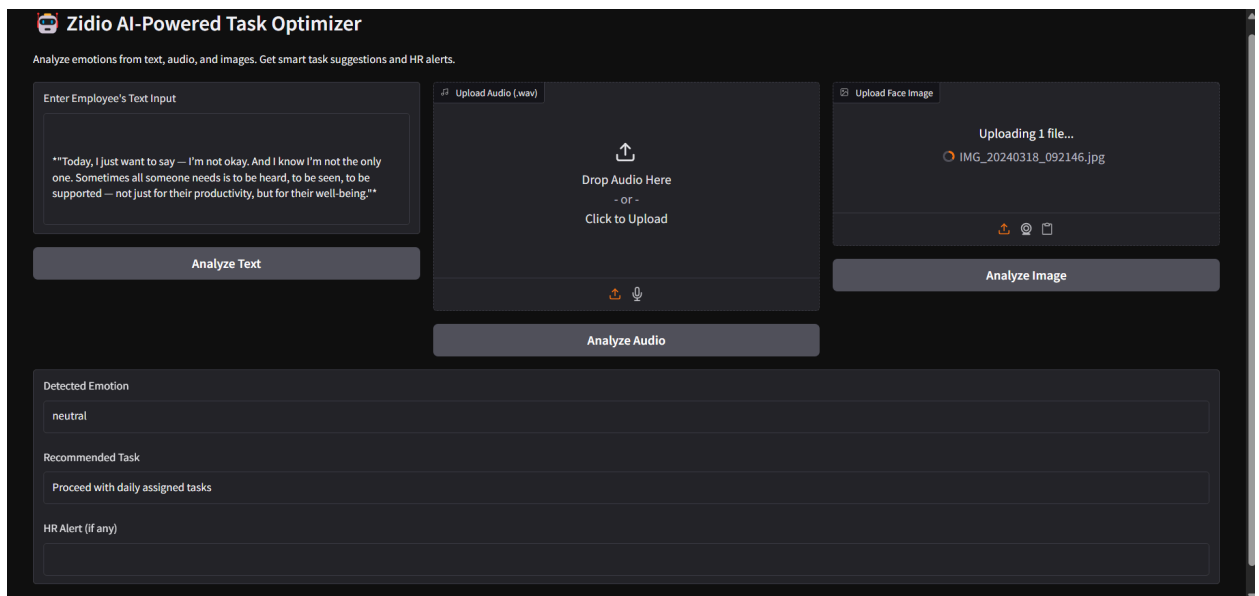
7.2. Professional Growth

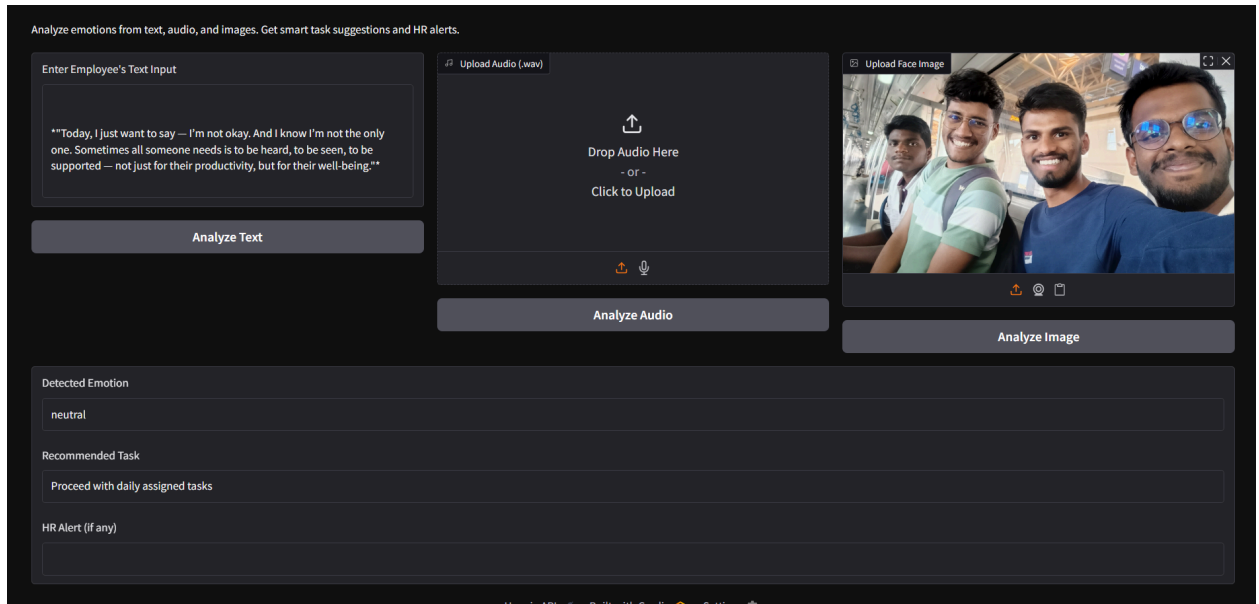
- Improved communication through regular team meetings and demo presentations.
- Learned to work independently while aligning with team goals.
- Understood industrial practices in software development and product management.

7.3. Final Outcome

The final version of the prototype successfully:

- Detected emotions from input data.
- Recommended appropriate tasks.
- Alerted HR in cases of distress.
- Displayed historical and team-wise emotional analytics. The system was demonstrated to the Zidio team, and received positive feedback on performance and potential scalability.





8. Challenges Faced

- Limited access to real organizational data for training.
- Balancing model accuracy with response speed for real-time processing.
- Ensuring ethical compliance and privacy safeguards during emotion tracking.

9. Conclusion

My internship at Zidio Development was a remarkable learning experience. The AI-Powered Task Optimizer project challenged me technically and helped me understand the real-world applications of AI in workplace wellness. I'm incredibly thankful to the mentors and team at Zidio who supported me throughout this journey with regular guidance, insightful feedback, and constant motivation.

This internship not only helped me grow as a developer but also taught me how technology can bring meaningful impact to human lives. I look forward to applying these learnings in future projects and remain inspired by Zidio's vision of empathetic AI-driven systems.