Parshvanath Charitable Trust's
A. P. SHAH INSTITUTE OF TECHNOLOGY
(Approved by AICTE New Delhi & Govt. of Maharashtra, Affiliated to University of Mumbai)
(Religious Jain Minority)

Department of Computer Science & Engineering (AI & ML)

Title: Enchanching Human Machine interaction using Multimodal Emotion Recognition

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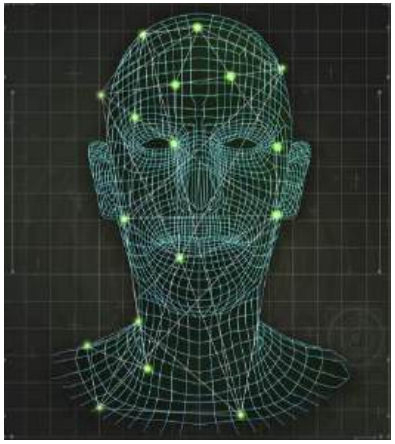
Project Guide
Mr: Vijesh Nair

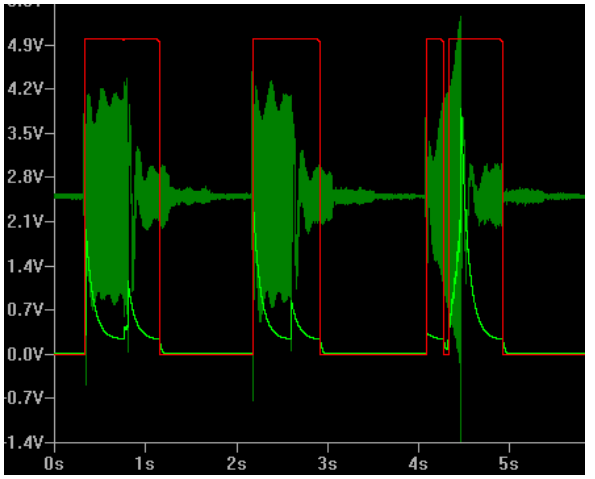
Outline

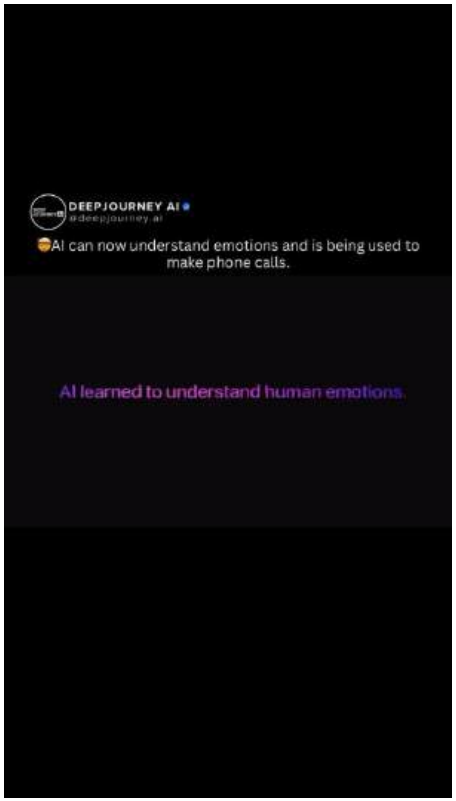
- Introduction
- Literature Survey of the existing systems
- Limitations of the existing systems
- Problem statement
- System Design
- Technologies and methodologies
- Implementation
- Conclusion
- References

Introduction

- Definition of multimodal emotion detection.
- Importance of understanding emotions in human-computer interaction.
- Need for robust systems capable of recognizing emotions across multiple modalities.






DEEPJOURNEY AI
@deepjourney.ai
AI can now understand emotions and is being used to make phone calls.
AI learned to understand human emotions.

FUTURE ? WHY?

Limitations of Existing Systems

- Emotions are Tricky
- Challenges in processing and integrating data from multiple modalities.
- We Need Good Data.
- They're Not Very Quick.

Problem statement

In today's tech-driven world, human-machine interaction is crucial, but current methods often miss human emotions. Our project combines face, speech, and text emotion recognition to fill this gap, revolutionizing human-computer interaction for various industries. By integrating visual, auditory, and textual cues, we aim to create a comprehensive solution that understands and responds to emotions accurately, unlocking new possibilities.

Literature Survey

Sr.no	Author	Title	Abstract
1	M. P. Gavali A. Verma **[2023]-AIBThings**	Automatic Recognition of Emotions in Speech With Large Self-Supervised Learning Transformer Models	Research investigates large attention-based self-supervised learning (SSL) models for automatic speech emotion recognition (SER) on the challenging RAVDESS dataset, achieving promising results. HUBERT large model yields the highest accuracy of 88% with reduced training time and model size, demonstrating its efficacy in addressing the limitations of supervised learning for SER.
2	S. K sooch D. Anand **[2022]-ICECA**	Emotion classification and facial keypoint detection	Emotion classification and facial keypoint detection achieved using AI techniques, employing convolutional and residual neural networks for robust recognition and authentication in diverse applications such as access control and surveillance.

Literature Survey

Sr.no	Author	Title	Abstract
3	M. Sajid M. Afzal M. Shoaib **[2021] - ICAI**	Multimodal Emotion Recognition using Deep Convolution and Recurrent Network	Our novel deep learning multi-modal architecture combines visual, textual, and audio features, boosting emotion recognition accuracy. Extensive experiments reveal significant improvements over existing methods, promising advancements in HCI and multimedia retrieval.
4	R. S. Deshmukh V. Jagtap S. Paygude **[2017]- ICICCS**	Facial emotion recognition system through machine learning approach	This research explores facial emotion recognition through an experimental study, aiming to develop an automatic system for stressed individuals, utilizing music therapy based on detected emotions from live webcam images.

Technologies and methodologies

Python

Flask

Google collab

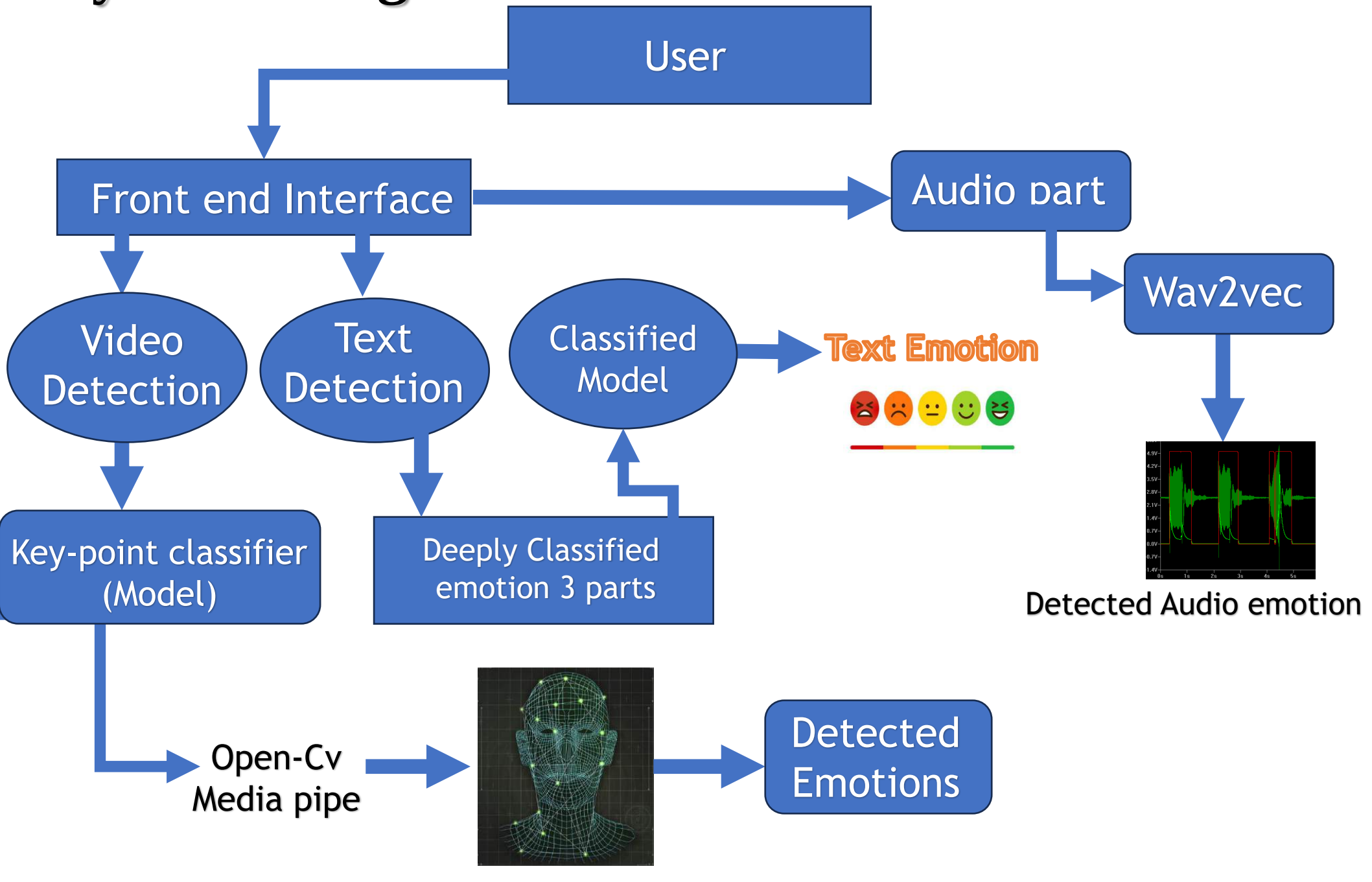
Media pipe

VS-Code

Machine Learning

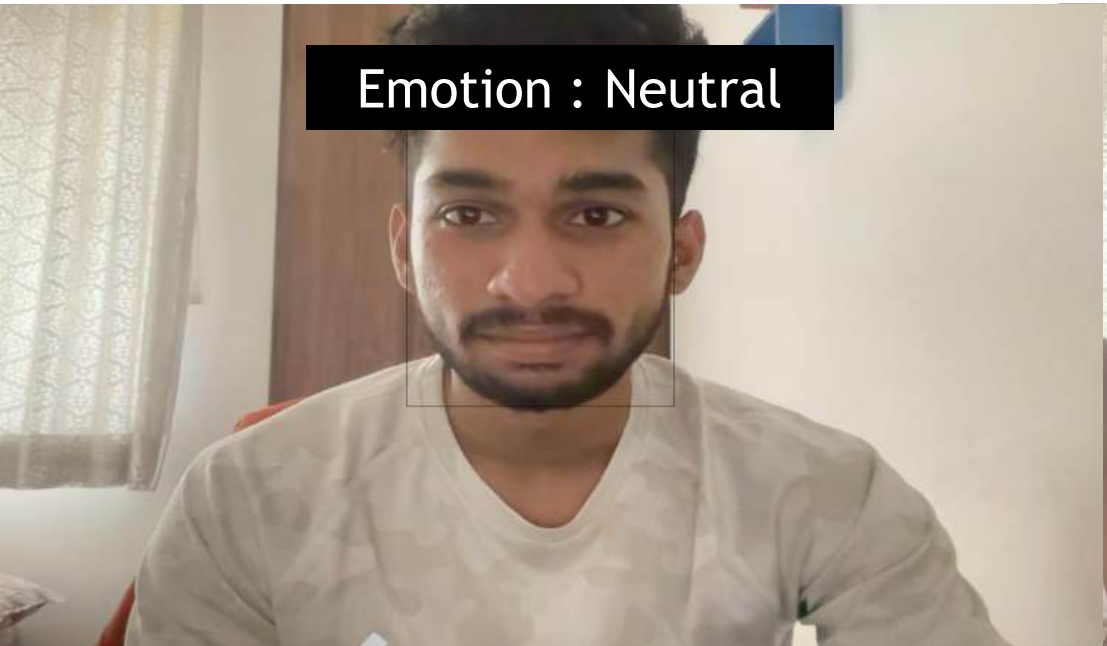
HTML

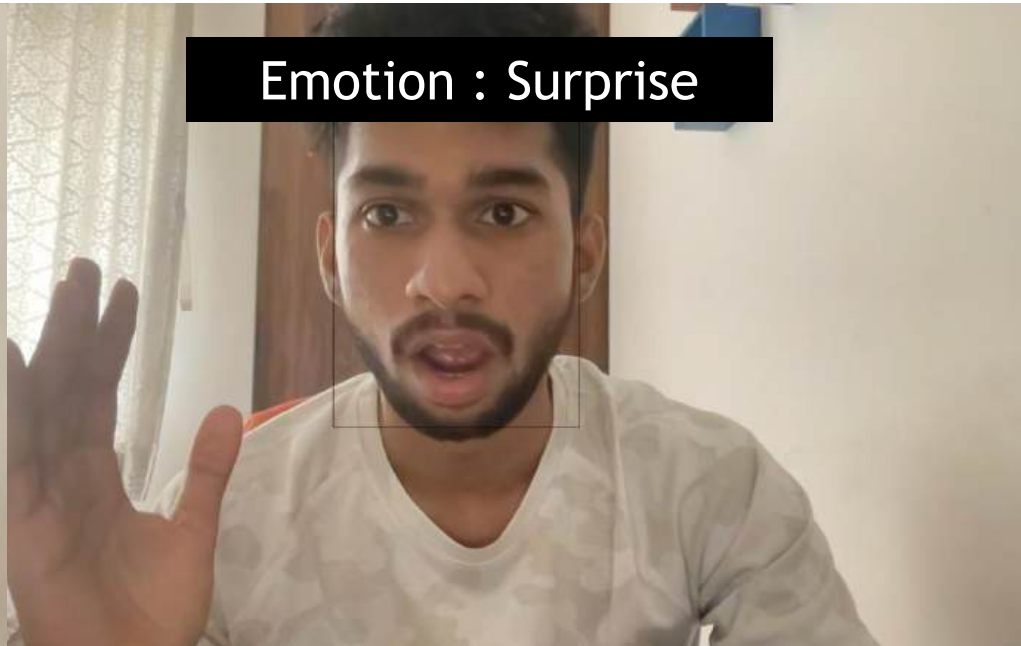
System Design



Implementation

Implementation





Implementation

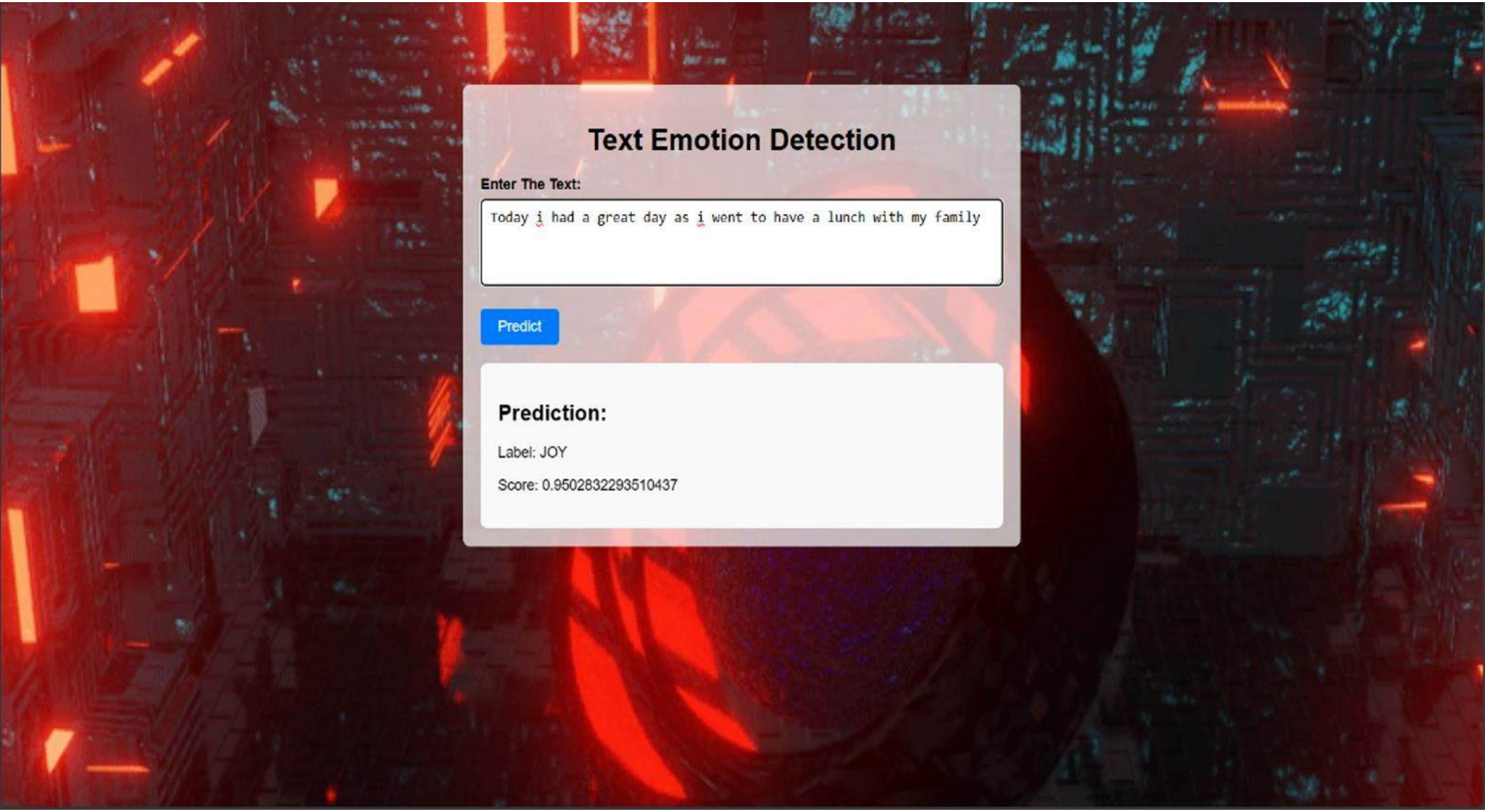
Audio Emotion Detection

Recording audio...

Mood:

Start Recording | Stop Recording

Implementation



Conclusion

- Using Different Ways to Understand Feelings
- Getting Better at Knowing How People Feel
- Helping in Many Areas
- Looking to the Future

References

- **Sajid et al., 2021 (ICAI):** Proposes a multimodal emotion recognition system combining deep convolutional and recurrent neural networks.
- **Deshmukh et al., 2017 (ICICCS):** Investigates facial emotion recognition using machine learning approaches.
- **Avula et al., 2022 (ICECA):** Explores CNN-based recognition of emotions and speech from gestures and facial expressions.
- **Gavali & Verma, 2023 (AIBThings):** Examines automatic recognition of emotions in speech with large self-supervised learning transformer models.

Thank You...!!