An Abstract
On

Smart stress detection and relief system using voice and image processing

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ABSTRACT

Stress has become a significant concern in modern life, affecting students, professionals, and individuals across all age groups. Traditional stress assessment methods depend on self-reporting or manual observation, making them subjective, inconsistent, and often inaccessible. To address this challenge, this project proposes a smart, multimodal stress detection system that combines voice analysis and facial expression recognition to accurately identify human stress levels in real time.

The system utilizes Convolutional Neural Networks (CNNs) to analyze facial cues, while LSTM-based audio processing evaluates variations in speech patterns, tone, and pitch. The outputs from both models are fused to classify stress into low, medium, or high levels with improved accuracy compared to single-modality approaches. Based on the detected stress level, the system provides personalized stress-relief recommendations, including breathing exercises, mindfulness prompts, and relaxation techniques.

By integrating image and voice processing with machine learning, this project demonstrates an effective and user-centric approach to early stress identification. The proposed system has potential applications in educational institutions, workplaces, mental-health monitoring tools, and personal wellness systems, making stress management more accessible and intelligent.

PROJECT GUIDE

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