RAJALAKSHMI ENGINEERING COLLEGE
An AUTONOMOUS Institution
Affiliated to ANNA UNIVERSITY, Chennai

25 years OF ACADEMIC EXCELLENCE

Department of Computer Science and Engineering

EMOTION-AWARE CHATBOT WITH INTELLIGENT SUPPORT AND WELLBEING SUGGESTIONS

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Problem Statement and Motivation

- Many existing chatbots lack the ability to understand and respond to human emotions, making interactions feel robotic and less supportive, especially in emotionally sensitive situations. This project aims to develop an Emotion-Aware Chatbot that intelligently detects emotions from user text inputs and provides contextually appropriate and empathetic responses.

Existing System

- Existing chatbot systems primarily rely on predefined rule-based or basic NLP models that lack emotional intelligence. These systems often provide generic or robotic responses, failing to consider the user's emotional state. Some advanced models use sentiment analysis but are limited to detecting only basic emotions like positive, negative, or neutral. They do not adapt their replies based on deeper emotional understanding. Additionally, existing systems rarely offer any wellbeing suggestions such as stress-relief tips or supportive messages. As a result, they fall short in providing a truly empathetic and engaging user experience.

Objectives

1. **Build an Emotion Detection Model** – Create a machine learning system capable of detecting emotions from text inputs by analyzing linguistic features and context using models like LSTM, BERT, or other pre-trained transformers.
2. **Identify Key Emotional Cues** – Determine which keywords, sentiment, and linguistic patterns most strongly correlate with different emotional states, improving the model's ability to classify emotions accurately.
3. **Create a User-Friendly Chatbot Interface** – Develop an intuitive web-based interface where users can interact with the chatbot, and receive emotion-aware responses along with tailored wellbeing suggestions, ensuring a seamless user experience.

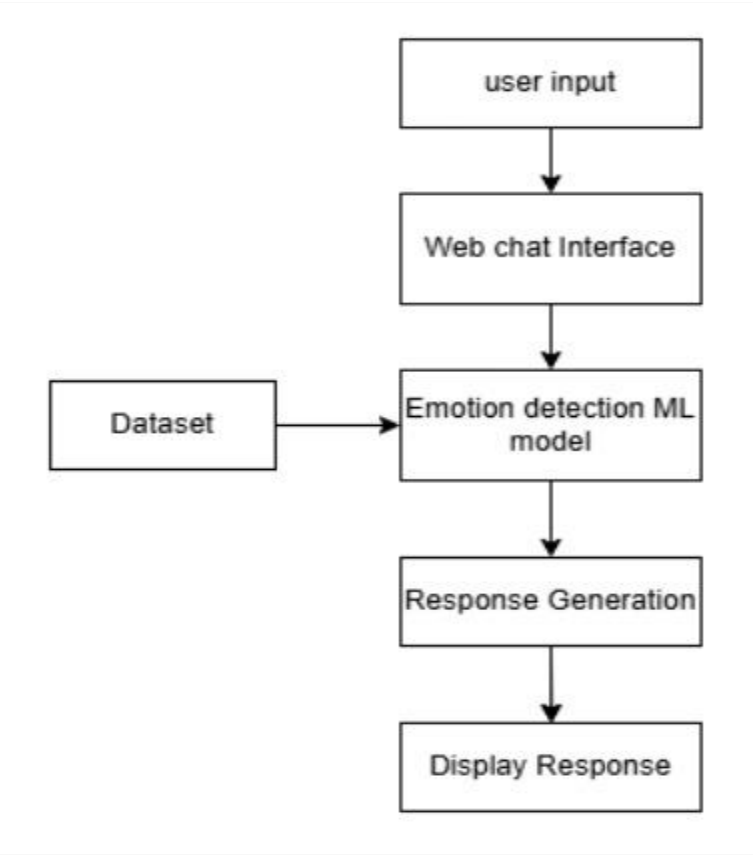
Abstract

- The *Emotion-Aware Chatbot* is an AI-driven system designed to detect emotions in real-time from user input. Using advanced machine learning models, such as LSTM and BERT, it classifies emotional states like joy, sadness, and anxiety. Based on the identified emotions, the chatbot generates empathetic, context-specific responses and offers personalized wellbeing suggestions, including relaxation exercises and positive affirmations. The system is designed to promote emotional resilience, support mental wellbeing, and provide users with tools to manage stress and anxiety. With a user-friendly interface, the chatbot ensures an engaging and supportive conversational experience.

Proposed System

- The proposed system for the *Emotion-Aware Chatbot* aims to provide real-time emotional support through intelligent conversation. By integrating machine learning models for emotion detection, the system analyzes user inputs to identify emotional states such as happiness, sadness, or anxiety. Based on the detected emotions, the chatbot generates personalized responses and offers wellbeing suggestions like breathing exercises or positive affirmations. The system is designed to be intuitive and accessible, allowing users to interact naturally while receiving mental health support. This approach aims to improve emotional resilience and provide users with practical tools for managing stress and emotions.

System Architecture



List of Modules

1. Long Short-Term Memory (LSTM)
2. Bidirectional Encoder Representations from Transformers (BERT)
3. Support Vector Machine (SVM)

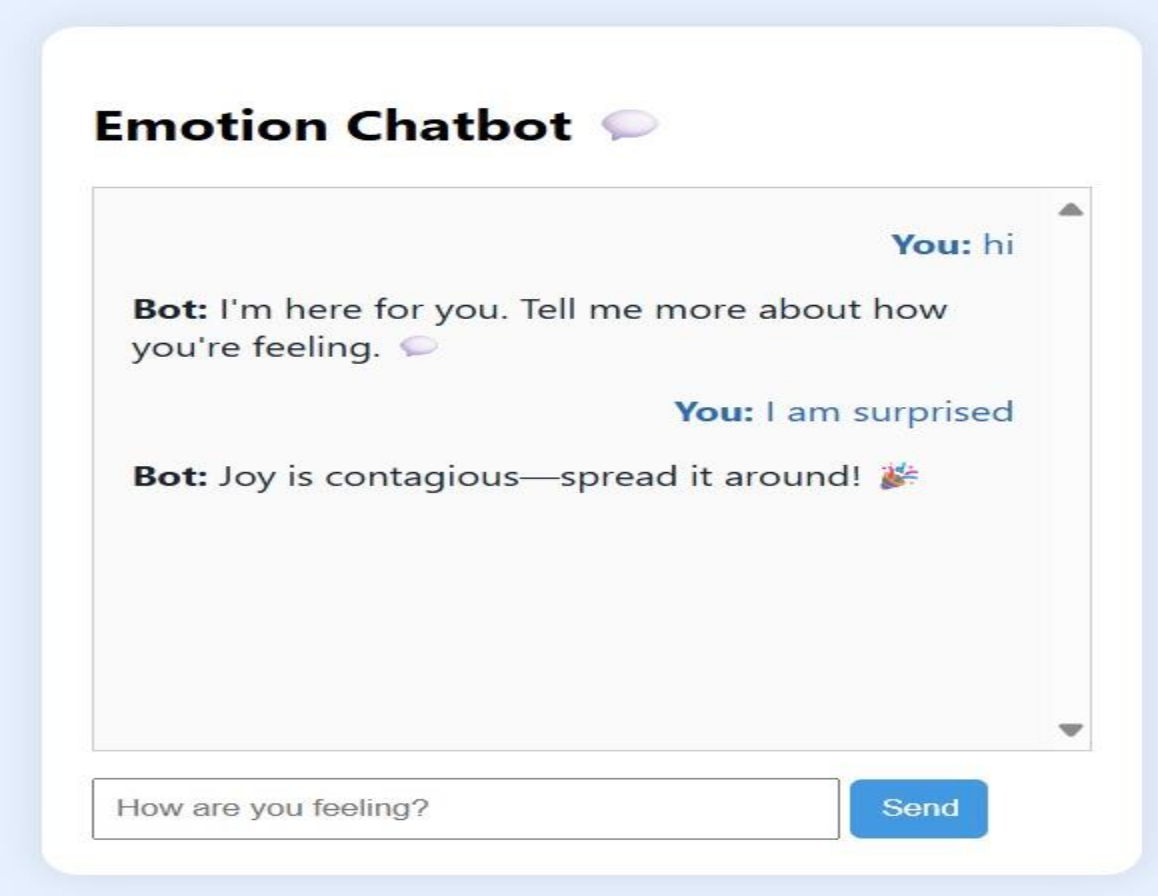
Functional Description for each modules

1. **Long Short-Term Memory (LSTM)** – A type of recurrent neural network effective in capturing sequential patterns in text for emotion classification.

2. **Bidirectional Encoder Representations from Transformers (BERT)** – A pre-trained transformer model that understands context and sentiment in language more accurately.

3. **Support Vector Machine (SVM)** – A traditional machine learning model used for classifying emotions based on extracted textual features.

Implementation & Results of Module



Conclusion & Future Work

- The *Emotion-Aware Chatbot* effectively detects user emotions and provides personalized, empathetic responses to promote mental wellbeing. It classifies emotions and offers tailored suggestions to help users manage stress and anxiety. Future work will focus on improving emotional accuracy with diverse datasets, adding voice recognition, and expanding wellbeing suggestions to further enhance the user experience.

References

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Thank You