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ISO 9001:2015 Certified Institution
Thalavapalayam, Karur, Tamilnadu.

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Mental Health Support Bot

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INTRODUCTION

- Mental well-being is crucial, yet many people struggle with emotional challenges without timely support.
- Digital technology provides an opportunity to make mental health assistance more accessible and personalized.
- MindCare allows users to log their mood, view emotional trends, explore coping strategies, and chat with an empathetic AI.
- The app promotes self-awareness and offers actionable support through curated content and intelligent analysis.

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PROBLEM STATEMENT

- Many people face stress, anxiety, and mood changes due to fast-paced lifestyles and pressure.
- They often find it difficult to track their emotions or understand their mood patterns.
- Reliable stress-relief resources and techniques are not always easily available.
- Emotional support through traditional mental health services can be expensive or hard to access.
- There is a need for a simple, continuous, AI-based digital companion to provide support and guidance.

Why Use Generative AI:

- Provides **continuous, real-time support** anytime, anywhere.
- Can **understand and respond to emotions** using natural language.
- Offers **personalized guidance** based on user mood and history.
- Makes **mental health support accessible and affordable**.
- Can **adapt and learn** from interactions to improve help over time.

OBJECTIVE

The objective of this project is to design and develop an AI-based Health Bot that provides instant mental health support in a simple and user-friendly manner. The system allows users to communicate through a chatbot interface where their messages are analyzed using natural language processing to understand emotions and mental states. Based on the analysis, the bot provides appropriate stress relief tips, motivational suggestions, and emotional guidance. The project also aims to help users track their moods and visualize emotional patterns through charts for better self-awareness. Ensuring user privacy and secure storage of interaction data is another key objective of the system.

EXISTING SYSTEM

The existing mental health support systems mainly rely on traditional counseling methods, self-help websites, or static mobile applications. These systems often require scheduled appointments, human availability, or paid subscriptions, which can delay support when users need immediate help. Many platforms provide generic advice without understanding the user's emotional context, making the support less personalized. Privacy concerns and social stigma also prevent users from openly sharing their feelings with human counselors. Additionally, most existing systems lack continuous mood tracking and real-time emotional analysis, limiting long-term mental wellness insights.

PROPOSED SYSTEM

- An AI-based mental health support system integrated within a web application
- Allows users to interact through a real-time chatbot interface
- Analyzes user emotions and mental state using NLP techniques
- Provides stress relief tips, motivational guidance, and emotional support
- Includes mood tracking with visual charts and history storage
- Ensures privacy using local storage and browser-based databases

PROPOSED SYSTEM

Advantages

- Provides 24/7 instant mental health support
- User-friendly and responsive web interface
- Personalized responses based on user input
- Mood tracking helps users understand emotional patterns
- Reduces stigma by offering private, judgment-free interaction

Disadvantages

- Cannot replace professional mental health counseling
- Effectiveness depends on user input quality
- Requires internet connectivity for AI API services
- Limited understanding of complex emotional conditions
- Advanced AI integrations may increase operational cost

TECHNOLOGY USED

Frontend

- **React 18** – Component-based UI development
- **Vite** – Fast development and optimized builds
- **Tailwind CSS** – Utility-first styling

Lucide React – Icon library

- **Recharts** – Mood visualization charts
- **AI Integration**
- **Google Generative AI (Gemini)** – Empathetic conversational support, motivational assistance, coping recommendations

Deployment & Tools

- Responsive UI design
- Modern ES6+ JavaScript
- Optional backend or cloud storage (if extended)

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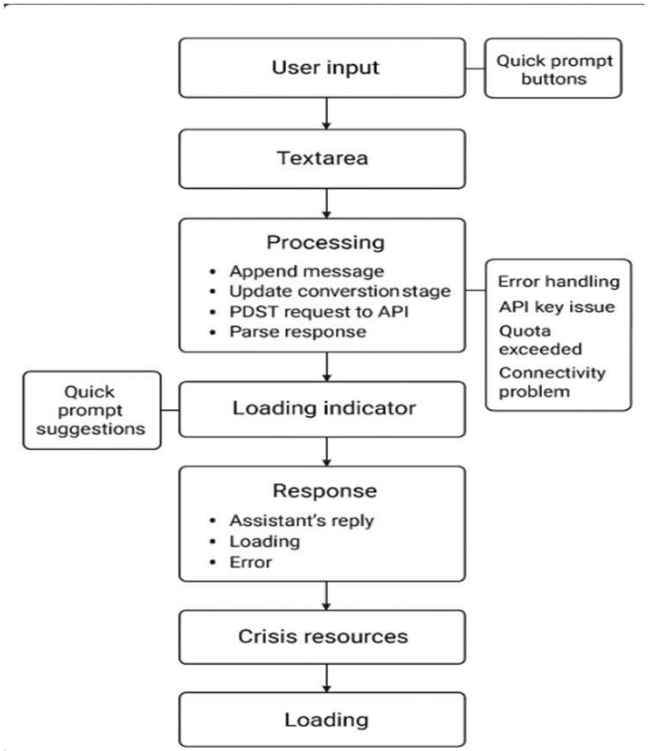
CHATBOT ARCHITECTURE



PROMPT DESIGN APPROACH

The prompt design approach in this project focuses on generating accurate, supportive, and context-aware responses for mental health assistance. User inputs are first analyzed to identify intent, emotional tone, and key concerns. Based on this analysis, structured prompts are dynamically created to guide the AI model toward providing empathetic, positive, and non-judgmental responses. The prompts include clear instructions such as offering stress relief tips, motivational guidance, or emotional reassurance while avoiding medical diagnoses. Context from previous user interactions and mood history is also incorporated to ensure continuity and personalization. This approach helps the chatbot deliver meaningful, relevant, and safe mental health support in real time.

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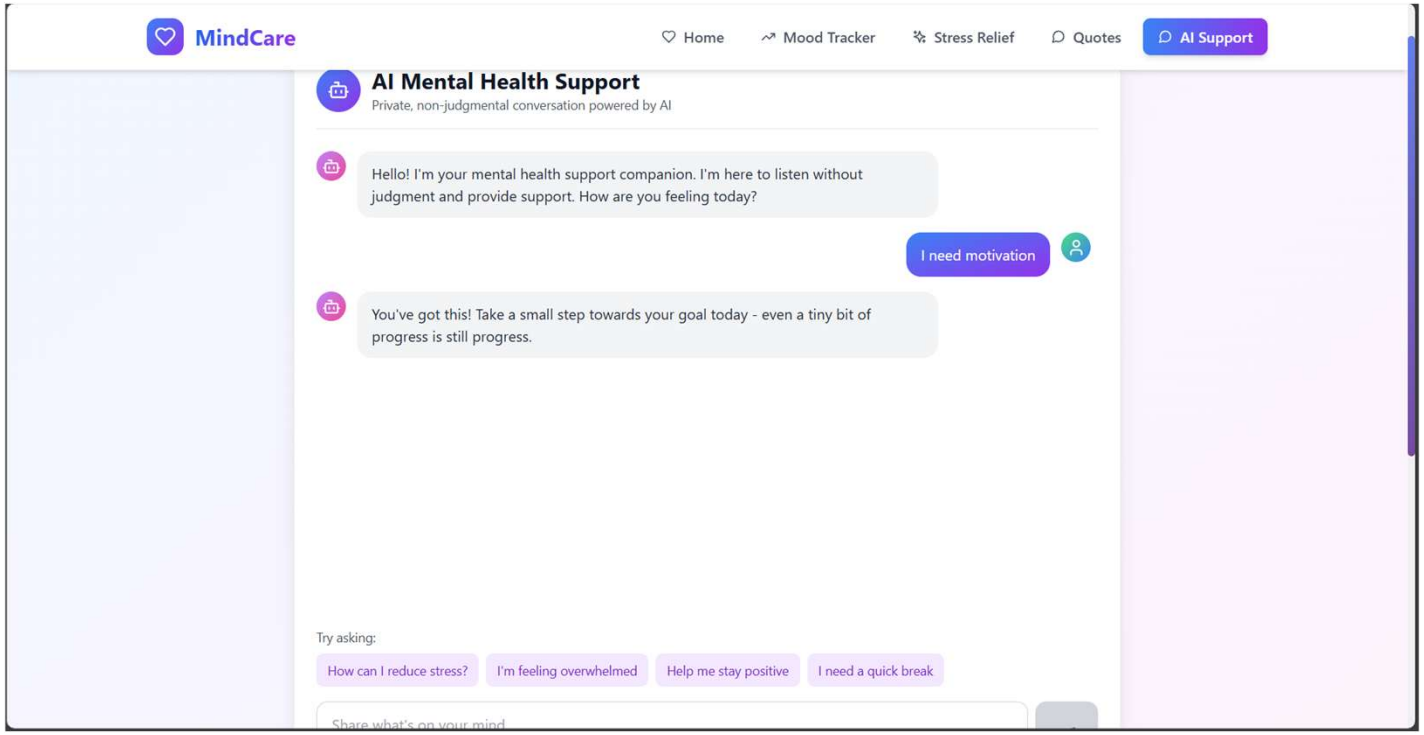
WEBPAGE INTEGRATION



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API INTEGRATION

The API integration in this project connects the web-based chatbot interface with external AI services to generate intelligent and meaningful responses. User messages entered on the webpage are sent to the AI model through secure HTTP requests using the OpenRouter API and Google Gemini SDK. The API processes the input using natural language understanding and returns context-aware responses related to mental health support. These responses are then displayed instantly in the chatbot interface. Proper error handling and response validation are implemented to ensure smooth communication between the frontend and the AI services. This integration enables real-time interaction, scalability, and efficient chatbot performance.

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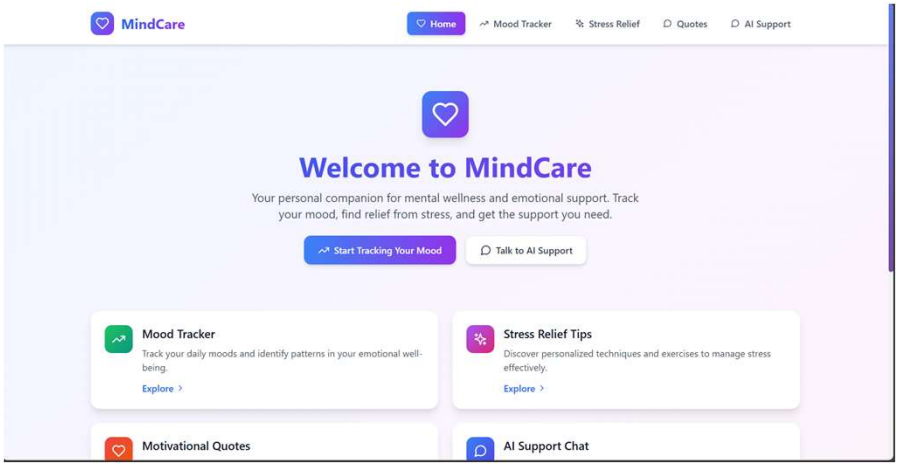
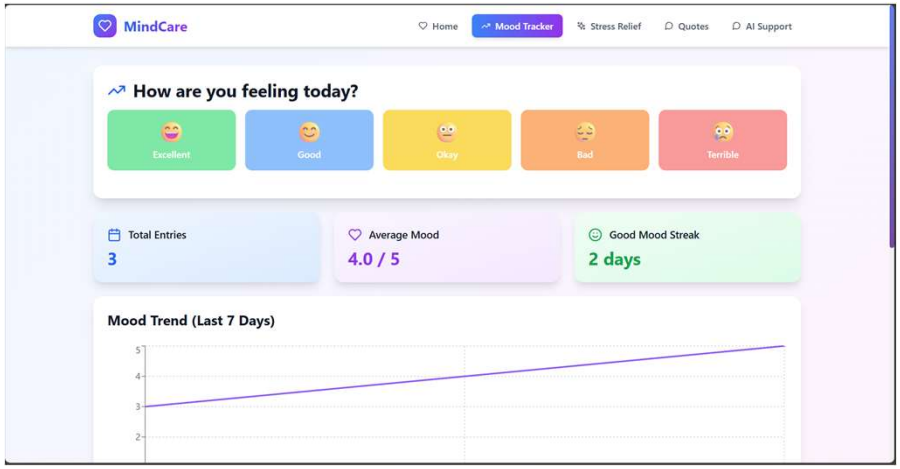
DEMO





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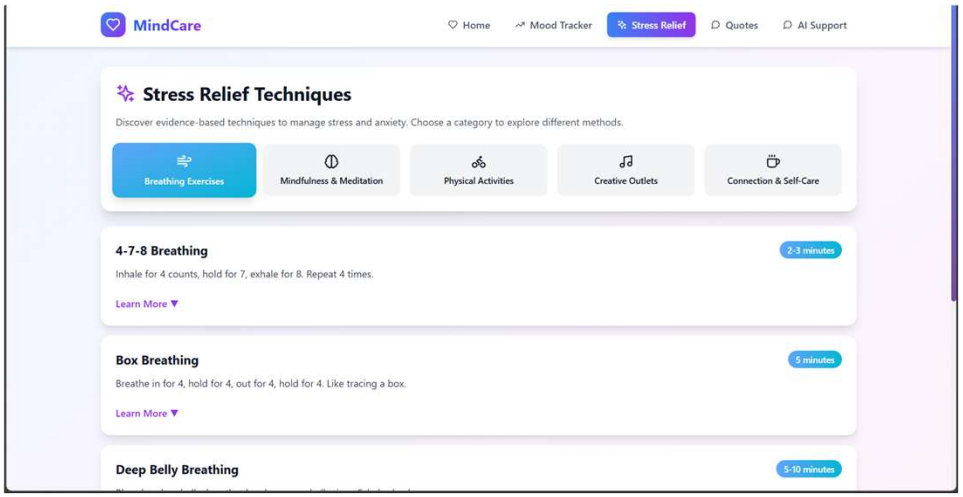

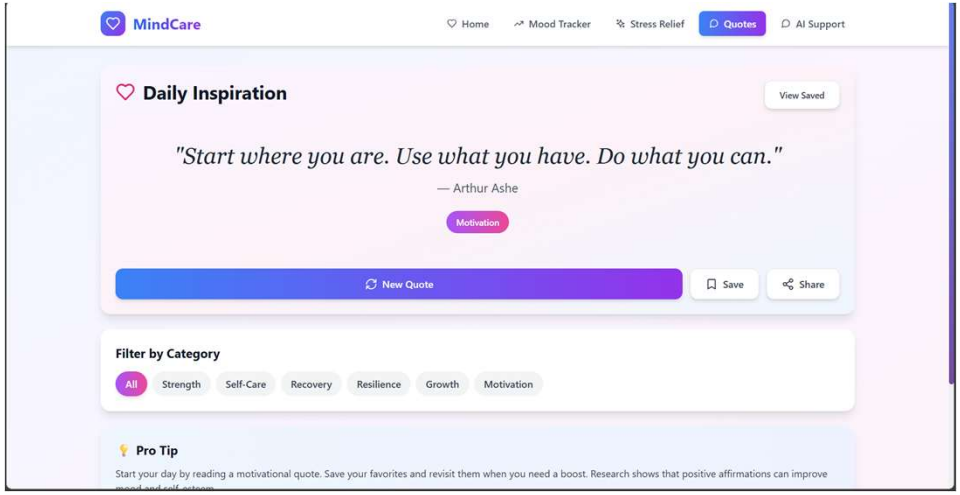

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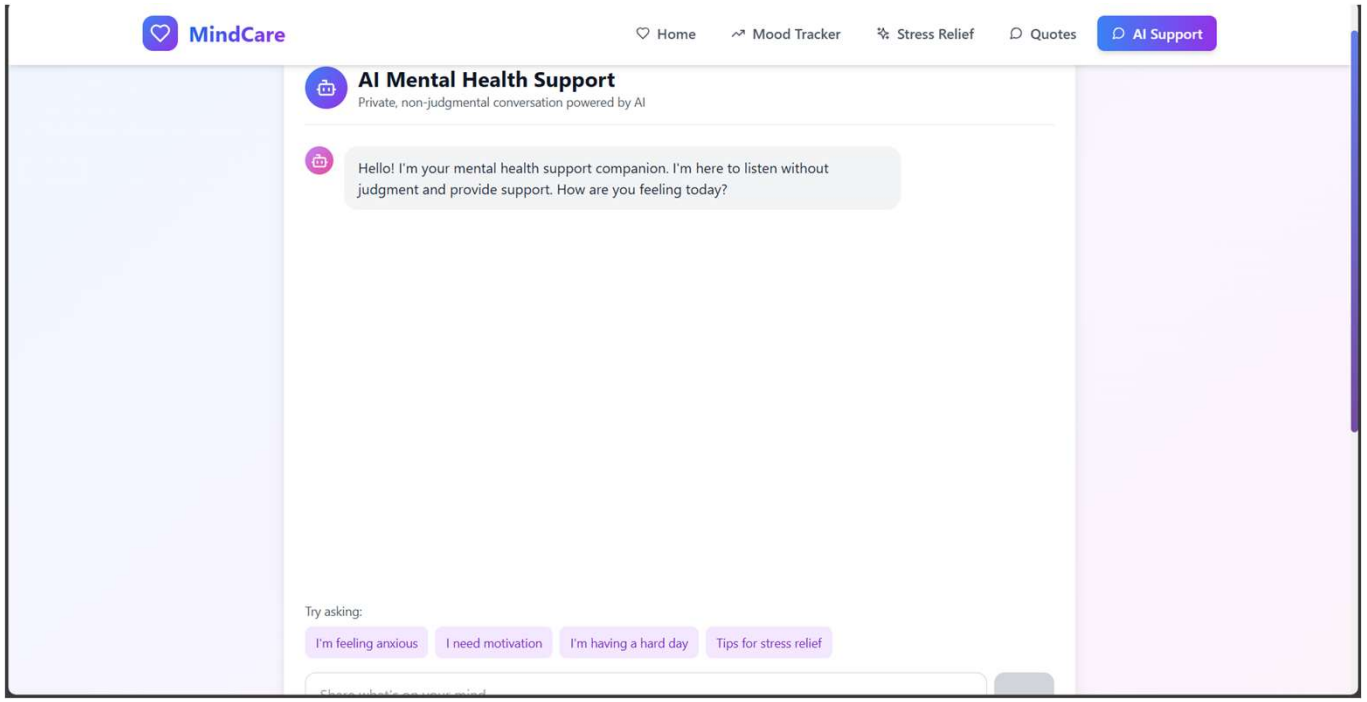

CHALLENGES & SOLUTIONS

Managing sensitive mental health conversations :

- **Solution:** Chatbot uses compassionate, brief, non-judgmental responses and displays crisis resources when crisis language is detected.

Handling diverse user inputs & conversation stages :

- **Solution:** System analyzes user keywords, updates conversation stages, and adapts quick prompts dynamically for smooth, context-aware interactions.

Ensuring smooth UI and user experience :

- **Solution:** Provides loading indicators, clear error messages, retry options, and automatic scroll-to-bottom to maintain seamless interaction.

CHALLENGES & SOLUTIONS

Reliable integration with external AI API :

- **Solution:** Strong error handling for API key issues, quota limits, connectivity failures, and model errors ensures stable performance.

Maintaining privacy and sensitive data handling :

- **Solution:** The chatbot emphasizes confidentiality and avoids storing or exposing user messages, creating a safe, trusted environment.

CODING

API INITIALIZATION & CONFIGURATION :

API URL and Key Setup

```
const api_key = "YOUR_API_KEY";
const API_URL =
  "https://generativelanguage.googleapis.com/v1beta/models/gemini-2.0-flash:generateContent";
```

Purpose

Stores Gemini API endpoint
Stores API key
Used for all AI message requests

CODING

QUICK PROMPTS (CONVERSATION STAGE LOGIC) :

Conversation Stage → Suggested Prompts

```
const quickPrompts = {
  initial: [
    "I'm feeling anxious",
    "I need motivation",
    "I'm having a hard day",
    "Tips for stress relief",
  ],
  afterGreeting: [
    "How can I reduce stress?",
    "I'm feeling overwhelmed",
    "Help me stay positive",
    "I need a quick break"
  ],
};
```

CODING

ADDITIONAL STAGES & PURPOSE :

More Conversation Stages

```
afterStressHelp: [
  "Breathing exercises",
  "Quick meditation tips",
  "How to stay focused",
  "I need a break"
],
afterMotivation: [
  "More encouragement",
  "How to stay motivated",
  "I'm feeling better now",
  "What else can help?"
]
```

PURPOSE :

Improves conversation flow
Suggests relevant quick prompts
Makes chatbot feel context-aware

FUTURE ENHANCEMENTS

Future Enhancements for the Chatbot

- **Multi-Language Support:** Translate conversations for global users.
- **Voice Integration:** Enable hands-free input/output.
- **Personalized Responses:** Remember user preferences and past chats.
- **Advanced Analytics:** Track usage to improve responses while keeping data private.
- **Offline Mode:** Provide basic responses without internet.
- **Mood Tracking:** Link chat with mood data for better context.
- **Community Features:** Safe, moderated group discussions.
- **Customizable Themes:** User-selectable calming UI options.

CONCLUSION

MindCare is a comprehensive mental health companion designed to provide users with accessible and personalized emotional support. By combining modern web technologies, intuitive design, and AI-powered conversation, the application helps users monitor their emotional well-being, manage stress, and stay motivated. The project demonstrates the potential of technology to improve mental health awareness and offer meaningful support. With further expansion and refinement, MindCare can evolve into a full-featured platform that empowers individuals to take control of their mental wellness journey.

GITHUB :https://github.com/Itzzlogesh/MENTAL-HEALTH-SUPPORT-BOT

DRIVE LINK :https://drive.google.com/file/d/1qVh5pswWLji9P2CNeJvBUB88fifX6lp0/view?usp=drive_link

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