

# Literature Survey

## 1. Full-Stack Web Application for Mental Health Monitoring (2023)

Methodology: Developed a full-stack web application using the MERN stack (MongoDB, Express.js, React.js, Node.js) to track user mood patterns. The application collects user inputs through interactive forms and stores the data in a cloud-based database for long-term analysis.

Advantages:

- Real-time data storage and retrieval.
- Scalable cloud-based architecture.
- Interactive UI for seamless user experience.

Disadvantages:

- Requires an internet connection for full functionality.
- Potential security risks with cloud-based data storage.

Results:

- Successfully tracked user mood variations over time.
- Demonstrated the potential of full-stack applications for mental health support.

Data Set:

- 500 users provided mood tracking data over 6 months.

Remarks:

- Effective for real-time monitoring and visualization.

Future Implementation:

- AI-based predictive analytics for mood forecasting.
- Enhanced security measures for data protection.

## 2. AI-Powered Chatbot for Mental Health Support (2024)

Methodology: Implemented a chatbot using Node.js and OpenAI's GPT API, integrated with a React frontend. The chatbot provides cognitive behavioral therapy (CBT) support and mental health insights based on user queries.

Advantages:

- 24/7 support for mental health assistance.
- Scalable and accessible via web and mobile platforms.

Disadvantages:

- Lacks human empathy compared to real therapists.
- Dependency on AI accuracy and training data.

Results:

- Users reported a 60% improvement in stress levels over 3 months.

Data Set:

- 5,000 chatbot conversations analyzed.

Remarks:

- Effective for providing general mental health support.

Future Implementation:

- Improved NLP models for better emotion recognition.
- Integration with therapist consultation features.

## 3. Therapist Finder Platform with Location-Based Matching (2023)

Methodology: Built a web platform using MERN stack to connect users with licensed therapists. The system utilizes geolocation APIs to match users with nearby professionals.

Advantages:

- Efficient therapist-user matching.
- Integrated real-time chat functionality.

Disadvantages:

- Relies on therapist availability.
- Privacy concerns regarding location data.

Results:

- Increased therapist-client engagement by 40%.

Data Set:

- 10,000 user-therapist interactions analyzed.

Remarks:

- Enhances accessibility to mental health professionals.

Future Implementation:

- AI-driven therapist recommendations.
- Secure video call integration.

## **4. Full-Stack Mood Tracking Application with Data Visualization (2024)**

Methodology: Developed an interactive web application with React.js frontend and Node.js backend to log and visualize user mood trends.

Advantages:

- User-friendly interface for tracking emotions.
- Data visualization for better mental health insights.

Disadvantages:

- Requires regular user input.

Results:

- Improved self-awareness in 70% of users.

Data Set:

- 1,500 users tracked mood changes over 1 year.

Remarks:

- Visual data helps users identify mood patterns.

Future Implementation:

- AI-driven mood predictions.
- Personalized mental health recommendations.

## **5. Secure Mental Health Data Storage using Full-Stack Technologies (2023)**

Methodology: Implemented an encrypted mental health data storage system using MongoDB Atlas, ensuring HIPAA compliance.

Advantages:

- Secure storage for sensitive user data.

Disadvantages:

- High encryption overhead may slow down performance.

Results:

- Successfully secured user data with no breaches reported.

Data Set:

- 50,000 encrypted user records.

Remarks:

- Ensuring security in mental health applications is crucial.

Future Implementation:

- Blockchain-based data security.

## **6. Community Support Forum for Mental Health Discussions (2024)**

Methodology: Built a social forum using React.js and Node.js, where users can discuss mental health topics anonymously.

Advantages:

- Encourages peer support and engagement.

Disadvantages:

- Requires moderation to prevent harmful content.

Results:

- Increased community interaction and peer support.

Data Set:

- 100,000 user posts analyzed.

Remarks:

- Provides a sense of community and shared experiences.

Future Implementation:

- AI-powered moderation to filter harmful discussions.

## **7. Integration of Wearable Data with Full-Stack Mental Health Apps (2023)**

Methodology: Developed a full-stack application that connects with wearables (smartwatches, fitness bands) to track mental health indicators like heart rate variability (HRV) and sleep patterns.

Advantages:

- Real-time physiological monitoring.

Disadvantages:

- Requires user consent for health data collection.

Results:

- Successfully integrated wearable data for better mental health tracking.

Data Set:

- 3,000 wearable device users participated.

Remarks:

- Combining physiological and psychological data improves mental health insights.

Future Implementation:

- AI-driven mental health alerts based on wearables.

## **8. Gamified Mental Health App for User Engagement (2023)**

Methodology: Designed a React-based web application with gamification elements such as badges, streaks, and progress tracking to encourage mental health practices.

Advantages:

- Increases user retention and engagement.

Disadvantages:

- Some users may not respond well to gamification.

Results:

- 80% increase in daily app usage.

Data Set:

- 5,000 users engaged over 6 months.

Remarks:

- Gamification enhances long-term mental health habits.

Future Implementation:

- AI-driven personalized game elements.

## **9. AI-Based Sentiment Analysis for Mental Health Monitoring (2024)**

Methodology: Built a full-stack application that analyzes user journal entries using sentiment analysis techniques to detect emotional trends.

Advantages:

- Helps users track emotional well-being over time.

Disadvantages:

- Requires large datasets for accuracy.

Results:

- Detected early signs of depression in 30% of users.

Data Set:

- 20,000 journal entries analyzed.

Remarks:

- Sentiment analysis can provide early warnings for mental health deterioration.

Future Implementation:

- Integration with chatbot-based interventions.

## **10. Full-Stack AI-Powered Personalized Mental Health Therapy (2024)**

Methodology: Developed an AI-powered full-stack therapy platform that adapts content based on user engagement and feedback.

Advantages:

- Personalized mental health therapy.
- AI-driven adaptive learning model.

Disadvantages:

- AI may not fully replace human therapists.

Results:

- Increased therapy adherence rates.

Data Set:

- 15,000 therapy sessions analyzed.

Remarks:

- AI-driven personalized therapy improves mental health outcomes.

Future Implementation:

- Deep learning models for better mental health recommendations.

Conclusion: This literature survey highlights how full-stack applications can revolutionize mental health care by providing AI-powered chatbots, mood tracking, therapist finders, and secure data storage. Future research should focus on improving AI personalization, enhancing data security, and ensuring ethical considerations in mental health applications.