

Thrive Path: Navigating Emotional Journey with AI Chatbot and Machine Learning techniques for Mental Health

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Abstract—In today's world, where mental health challenges are becoming increasingly common, there's a growing need for accessible, personalized, and compassionate support systems. ThrivePath was designed to help people overcome obstacles to mental healthcare seeking including stigma and ignorance. To provide users an immersive and supportive setting for going their emotional trip, we decided to combine interactive tools, AI-driven chatbots, and machine learning into a single platform. Google Gemini 1.5 by Pro powers an artificial intelligence chatbot on the platform that offers personalized, compassionate interactions to guide users confidentially and supportively through their issues. We included a mental health questionnaire to evaluate emotional well being in order to better equip consumers, producing knowledge that informs tailored recommendations for wellness tools including yoga, exercises, music therapy, and journaling. Guests have access to multimedia content; registered users have a more individualized experience; both kinds of users have unique capabilities on the platform. ThrivePath promotes a proactive attitude toward mental health by means of machine learning, chatbot, and customized content that helps users not only manage stress and anxiety but also provide them with means for self-care and emotional development.

Keywords: emotional journey, chatbot, machine learning, mental health, AI, quiz, support system, mental well-being.

I. INTRODUCTION

Mental health issues including depression, anxiety, and emotional burnout are now beginning to impact people of all ages in different parts of the world in our fast-paced and high-pressure society. Negligence of these illnesses could significantly affect general well-being, relationships, and daily life. While knowledge of mental health is growing around the world, many people still reluctant to seek support are limited in scope, insular, and afraid of conventional therapy.

Particularly following the COVID-19 epidemic, which intensified emotional distress and psychological stress, mental health has become a major public health concern in India. The epidemic broke patterns, increased uncertainty, and resulted in a steep increase in anxiety, depression, and isolation. Particularly youth and women suffered major emotional difficulties, underlining a desperate need of open, compassionate, and non-

judgmental support networks. These results highlight the need of creative ideas able to close the mental health treatment divide, especially for those few.

Regrettably, skepticism about therapy efficacy or reluctance to interact with conventional therapy environments still keep many people from getting professional help. ThrivingPath arose as a potential internet answer to these challenges. An artificial intelligence-based mental health web platform, ThrivePath is meant to give available, customized assistance for people negotiating their emotional path. Along an empathetic AI chatbot driven by Google's Gemini 1.5 Pro model, it integrates creative journaling exercises, sound therapy, mindfulness activities, and a mental health test for self-assessment. ThrivePath hopes to help users in a caring, protected online setting lower emotional suffering, become self-aware, and enable proactive steps towards mental health by merging human-centered design and machine learning.

II. LITERATURE SURVEY

The quality and accessibility of mental health support have greatly improved as a result of recent technological developments. At ICACCS, Sreevidya Iyer and colleagues [1] presented a work on the creation of virtual mental health helpers. In order to better manage stress, anxiety, and related issues, their work focuses on using chatbots to offer real-time psychological support, tailored resources, and facilitated pathways to expert assistance. Kacey Beddoes and Andrew Danowitz [2] investigated the wellness and mental health patterns of engineering students in the Western United States. Their findings highlight the particular challenges that this group faces and support the inclusion of focused wellness initiatives in educational settings to meet particular requirements. In their study presented at ICCCI, G. Parimala et al.

[3] examined machine learning-based diagnosis and detection of mental health problems. Their research highlights the vital significance of AI in early diagnosis by showing how predictive modeling approaches may be applied to increase the precision and effectiveness of mental health examinations.

V. M. Deshmukh et al. [4] further expanded AI applications by characterizing mental health disorders using an analysis of user-generated social media content. Their research, which was presented at ACCAI, demonstrates the potential of social media analytics in mental health evaluation by using machine learning and natural language processing (NLP) to find patterns associated with mental diseases like depression.

These studies collectively highlight the growing role of artificial intelligence, machine learning, and digital platforms in advancing mental health support, detection, and diagnosis

III. STATISTICS AND PREVALUATION

Mental health has become a major worldwide concern. One in five people worldwide suffers from symptoms of mental disease, according to Dr. Ruchi Jain, Consultant Psychologist at Jaslok Hospital and Research Center, Mumbai, as published by The Economic Times [5]. It is concerning to note that 75% of mental health disorders appear by the age of 24, and half of all mental health disorders start by the age of 14. It is estimated that 970 million individuals worldwide suffer from a mental disorder of some kind. About 8 million deaths a year, or 14.3% of all deaths worldwide, are caused by mental health issues. The situation in India mirrors the global mental health crisis. Between 60 and 70 million people are thought to be affected by common mental health conditions. However, there are still significant barriers to receiving quality mental health care.

As a result of the COVID-19 pandemic, the mental health crisis worsened and the number of instances of anxiety, depression, and related illnesses significantly increased. This increasing cost emphasizes how vital it is to improve care availability, raise awareness of mental health issues, and lessen stigma in society.

Given these concerning statistics, the need for accessible mental health platforms becomes even more crucial. According to India's National Mental Health Survey (2015–16), the prevalence of mental disorders among adults was 10.6%, with a lifetime prevalence of 13.7%, according to the Press Information Bureau (PIB) [6]. The frequency is significantly higher in urban regions (13.5%) than in rural areas (6.9%). Between 70% and 92% of people with mental illnesses do not receive proper care, indicating that treatment gaps are still significant. The World Health Organization (WHO) recommends three psychiatrists per 100,000 people, yet India has only 0.75 psychiatrists per 100,000, a severe shortage of mental health services. The Economic Survey 2024–25 [7] acknowledges the significance of mental health and highlights the necessity of promoting mental well-being as a key component to capitalize on India's demographic dividend. It promotes a "whole-of-community" approach in preventative mental health strategies and defines mental well-being as the integration of emotional, cognitive, social, and physical skills.

In line with these objectives, The availability of treatment, guest login, and self-help tools varies across a number of mental health platforms, as shown in Table I. While some platforms, like MindPeers and Therapize, concentrate more

on offering resources without guest access, others, including iCall (TISS) and NIMHANS, provide free guest logins and access to self-help resources.

Platform	Free	Guest Login	Therapy	Self-Help Resources
iCall (TISS)	Yes	No	Yes	No
MindPeers	No	No	Yes	No
Fortis	No	No	Yes	No
1to1Help	No	No	No	No
Manastha	No	No	Yes	No
Therapize	No	No	Yes	No
NIMHANS	Yes	No	Yes	No

TABLE I
COMPARISON OF MENTAL HEALTH PLATFORMS ON KEY PARAMETERS

IV. METHODOLOGY

An AI-powered mental health website called *ThrivePath: Navigating Emotional Journey* was created to offer individualized emotional support. To help users navigate their road toward emotional well-being, the site incorporates tailored recommendations, interactive quizzes, and a sympathetic AI chatbot. The methodology is divided into two primary components, which are described below:

A. System Architecture and Workflow

The backend features, AI integration, user interaction flow, and overall system design are all covered in this section.

1) User Authentication and Role Differentiation

There are two levels of access available on the platform:

- *Guest Users:* Have access to general wellness content such as music therapy, yoga, meditation, and therapeutic games.
- *Registered Users:* Must log in using a username and password. Once authenticated, users are guided through a mental health quiz to evaluate their emotional state.

2) Personalized Suggestion Engine

Based on the quiz results, users receive personalized recommendations. These include:

- Yoga and mindfulness exercises
- Lists of calming music
- Stress-relieving games

The recommendation engine customizes these activities to each user's emotional state.

3) Using Gemini AI with Chatbots

The Gemini AI-powered chatbot acts as a virtual mental health assistant. Users can interact with the chatbot to receive:

- Empathic communication
- Motivational quotes
- General information about mental health

The chatbot provides context-aware, AI-generated responses by communicating with the backend through APIs.

4) Database Management

A SQLite3 database securely stores all essential user data, including:

- Login details
- Quiz history
- Chatbot logs

The Flask backend manages all interactions with the database to allow real-time data access and updates.

5) **User Interface on the Front End**

The interactive user interface, built using HTML, CSS, and JavaScript, includes:

- Registration and login pages
- Quiz interface
- Chatbot interface
- Progress dashboard

RESTful APIs are used to connect the frontend components to the backend for seamless operation.

B. *Quiz and Scoring System*

One of the main tools in *ThrivePath* for evaluating users' mental health was quizzes. With minor adjustments, the Patient Health Questionnaire-9 (PHQ-9) framework was used as the model for the mental health evaluation.

1) *Structure of the Quiz:* Nine main questions were shown to the users, and they covered the following topics: mood, interest levels, appetite, energy, self-esteem, concentration, motor behavior, and suicidal thoughts. Another question assessed how these issues affected day-to-day functioning. Each question was rated on a scale:

- Not at all — 1 point
- Several days — 2 points
- More than half the days — 3 points
- Nearly every day — 4 points

2) *Scoring and Interpretation:* After quiz completion, the platform automatically calculated the total score by summing up the responses.

3) *Scoring and Interpretation:* After quiz completion, the platform automatically calculated the total score by summing up the responses. The total score is used to determine the severity of depression, as shown in the table below:

Total Score	Depression Severity
9-13	Minimal depression
14-22	Mild depression
23-31	Moderate depression
32-40	Moderately severe depression
41-49	Severe depression

TABLE II
DEPRESSION SEVERITY BASED ON TOTAL SCORE

V. **USE CASE DIAGRAM**

Explanation of the Use Case Diagram:

Actors:

- **Guest User:** Accesses the system without logging in; limited to viewing general MindHacks which includes solutions which help you heal your Mental Health like Music, Exercise, Yoga and Game.

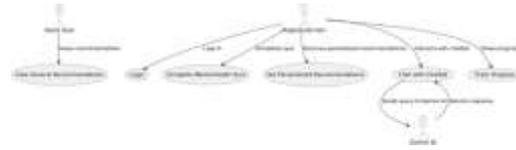


Fig. 1. Use Case Diagram of the ThrivePath Mental Health System

- **Registered User:** Logs in to access quiz, Solutions(LikeMusic, Yoga and Game), chatbot interaction, and progress tracking.

- **Gemini AI:** An external AI service responsible for generating chatbot responses.

Use Cases:

- 1) **Login:** Registered users authenticate using their Mail ID and Password to access the full features of the platform.
- 2) **ThrivePath Quiz:** Allows users to evaluate their mental health through a structured quiz.
- 3) **MindHacks:** Suggests tailored wellness activities based on quiz results.
- 4) **Chat with Chatbot:** Enables users to interact with a Gemini AI-powered chatbot for emotional guidance.
- 5) **Track Progress:** Users can monitor improvements based on past interactions, scores, and activities.
- 6) **View General Recommendations:** Available to guest users without requiring login.

Relationships:

- **Guest User:** Can only perform the “View General Solutions(MindHacks)” use case.
- **Registered User:** Can perform all primary system functions after login.
- **Gemini AI:** Provides AI-generated responses for the chatbot interactions.

VI. **FUTURE SCOPE**

ThrivePath offers great possibilities for development. More sophisticated AI models with a more thorough grasp of emotions might be used in later incarnations, providing even more tailored assistance. Adding abilities to interpret emotional signals in real-time by recognizing voice tones and facial expressions will assist.

Users may also be able to schedule appointments directly via the app through contacts with qualified mental health experts. Encouraging more consumer engagement might be achieved by providing added therapeutic tools like live seminars, guided meditation sessions, and artificial intelligence-generated self-help plans.

Moreover, the ThrivePath mobile app could improve accessibility for many populations and empower users to get help anytime and anywhere they need it, benefiting their mental well-being.

VII. **CONCLUSION**

In conclusion, the ThrivePath is a creative way to offer easily accessible, individualized mental health assistance.

By incorporating cutting-edge AI technology, it provides a round-the-clock platform for users to interact with mental health resources like games, yoga, meditation, and music that are customized for their needs based on quiz results. A progress tracking feature guarantees that users can keep an eye on their mental health over time, providing an encouraging and open means of observing advancements.

The chatbot lessens the stigma associated with mental health support in addition to assisting users in managing their mental health on their own. It serves a wide spectrum of people by offering both general suggestions for visitors and individualized attention for registered users. Additionally, the addition of Gemini AI improves the chatbot's capacity to hold meaningful discussions with users while offering 24/7 therapeutic support and mental health advice. This system makes mental health support more affordable, private, and scalable, especially for people who might be reluctant to seek traditional therapy or live

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