

PROPOSAL REPORT

Generative AI for Youth Mental Wellness GenAI Exchange Hackathon

1. Problem Statement

Mental health issues among youth are rising at an alarming pace. However:

- Many hesitate to approach therapists due to **stigma or fear of judgment**.
- Therapy for conditions like **Obsessive-Compulsive Disorder (OCD)** happens only in controlled office settings, leaving youth without support in their real-world triggers.
- Continuous, real-time guidance outside therapy is missing, creating a gap between professional help and everyday struggles.

There is an urgent need for an **AI-powered solution** that provides **empathetic companionship, therapy reinforcement, and proactive monitoring**—all accessible 24×7.

2. Solution Overview

We propose a **two-layered AI platform** that combines:

1. **EmpathAI** – an emotional support companion for anyone hesitant to seek therapy.
2. **OCD Support Module** – a structured, therapist-integrated tool providing both short-term and long-term assistance.

Together, these create a **hybrid ecosystem** that is **reactive** (responding to emotional needs and OCD urges) and **proactive** (predicting stress cycles using wearable integration).

3. Key Features

1. EmpathAI – Emotional Expression Companion

- Target Audience: Youth who feel uncomfortable seeking therapy.
- Provides a safe, AI-powered space for **free emotional expression**.
- Acts as a **judgment-free listener** to help users release stress and gain clarity.
- Can serve as the **first step toward professional help**.

2. OCD Support Module – Therapy-Integrated Tool

a) Long-Term ERP Support

- **Tracks triggers** and arranges them into a **hierarchy**.
- Provides **gradual exposure with timed delays** before compulsions.
- Delay time is **systematically increased** to build resistance.
- Helps replicate and reinforce ERP (Exposure and Response Prevention) outside therapy sessions.

b) Short-Term (Crisis Mode)

For overwhelming urges, users can choose:

- **Reassurance Mode**
 - Used when obsessions and compulsions are **logically connected**.
 - Provides **rational explanations and logical counterpoints**.
 - Extends from EmpathAI chat, but specialized for OCD cases.
- **SOS Mode** (for non-logical obsessions & compulsions)
 - **Distract Me:** Redirects attention via:
 - Sensory games
 - Calming visual timers
 - Grounding activities (“name 5 things you see around you”)
 - **Work Mode:**
 - Subtle pop-up overlay on the user’s screen.
 - Shows **motivational nudges, calming messages, or task reminders**.
 - Helps the user redirect from obsession to ongoing work.

c) Therapist Portal

- Secure dashboard for therapists.
- Tracks:
 - Compulsion frequency
 - ERP progress (delay times, trigger exposure success)
 - SOS/Reassurance usage patterns
- Enables **data-backed personalization** of therapy.

d.) Predictive Wellness with Wearables (Fitbit Integration)

- **Data Sources:** Heart rate, HRV, stress, activity, sleep.
- **AI Cycle Detection:**
 - HR spike + HRV drop → possible obsession onset
 - Repetitive motion → compulsion
 - HR stabilization → relief
- **Advantages:**
 - Captures physiological changes that indicate stress, obsessions, or compulsions—even if the user does not consciously report them.
 - Provides early warnings before, during, or after an obsessive episode, based on body signals.
 - Ensures support is available even when users feel too overwhelmed or hesitant to share.
 - Bridges the gap between subjective self-reporting and objective biometric detection.
- **Outputs:**
 - Daily AI-generated **Wellness Score** (progress vs. past self).
 - Therapist dashboard showing **trends over time**.

e) Daily AI Wellness Score

- Personalized **mental health progress tracker**.
- Encourages **self-reflection and positive reinforcement**.
- Turns improvement into a **gamified, motivating journey**.

4. Impact

- **Reduces stigma** by offering a private, non-judgmental first step.
- **Empowers OCD patients** with real-time coping tools outside therapy.
- **Supports therapists** with objective, data-driven insights.
- **Predicts stress cycles**, enabling early intervention.
- Creates a **scalable, 24×7 AI-powered mental wellness ecosystem**.

5. Conclusion

Our solution merges **empathetic AI conversations, ERP reinforcement, wearable-driven predictive analytics, and therapist integration** into a unified platform.

- For hesitant youth, it is a **safe space to share and heal**.
- For OCD patients, it is a **continuous therapeutic companion**.
- For therapists, it is a **data-rich support tool**.

By bridging the gap between **office-based therapy** and **real-world mental health needs**, this project aims to deliver **24×7 proactive care for youth mental wellness**.