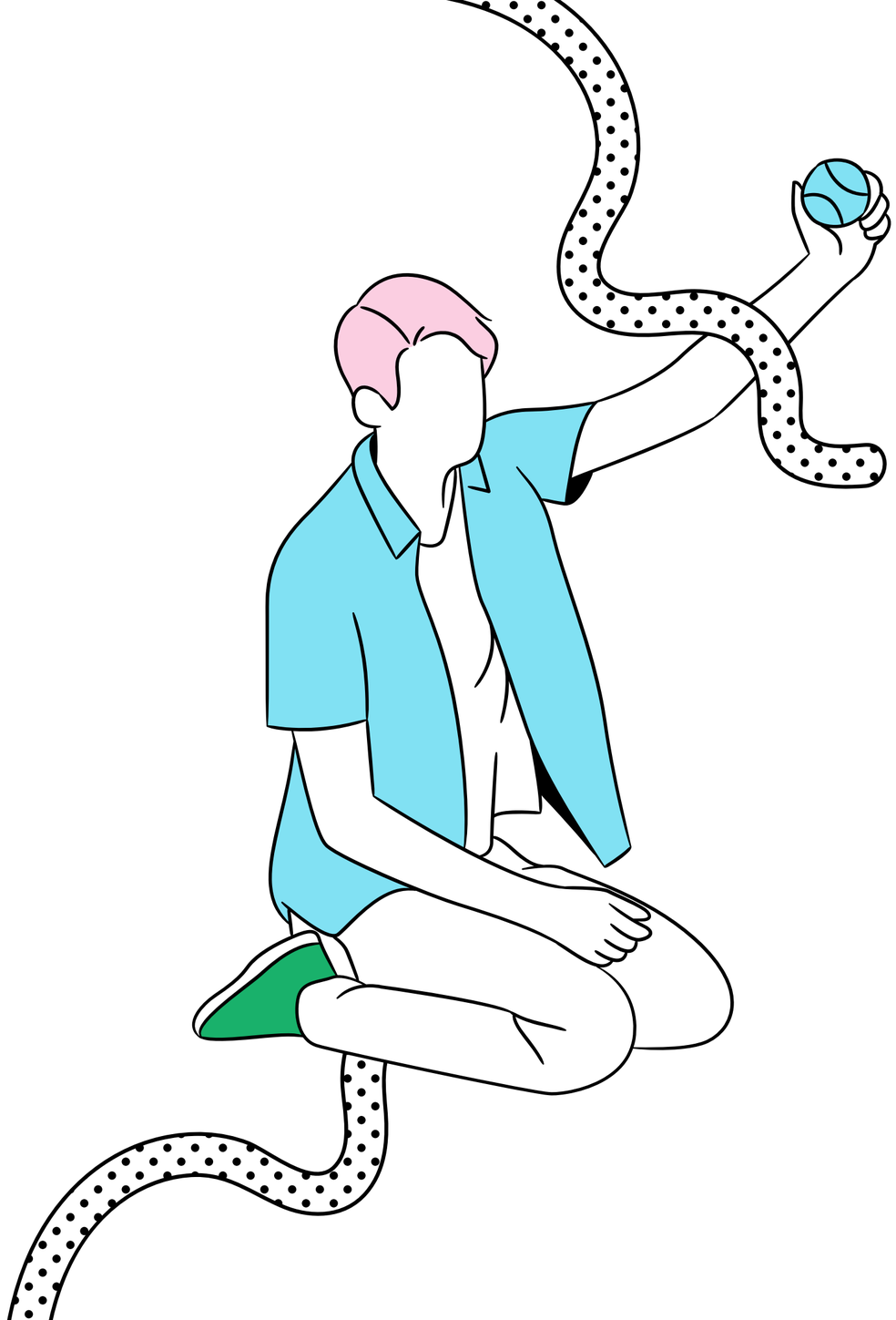


# InsightYou

A mental health chatbot that makes the process of knowing yourself easier😊

# Staying healthy in mind and body is essential, especially in this current instance of the world.

Taking good care of ourselves can help us move from simply getting through to thriving and growing during these unusual times.

# What is InsightYou?

“InsightYou" is an AI-driven mental health assistant that integrates multiple systems to help users manage their emotions and mood at their own pace. It consists of 3 modes of mood detection:

1. AI-Based Chatbot – A interactive and responsive chatbot that adapts its responses based on the user's emotions and mood.
2. Vision-Based Emotion Detection – Analyzes facial expressions to determine the user’s emotions.
3. EEG-Based Mood Detection – Uses EEG sensors to measure brain waves for mood assessment.

# What existing problem are we solving?

This project aims to bridge the gap between AI and human-like emotional understanding by making virtual mental health support system. Some of the other problems that it solves are:

**1.<u>Lack of Immediate Emotional Support:</u>**

Many people experiencing mental distress don’t have immediate access to therapists or support systems or hesitate to seek help.

**2. <u>Overburdened Mental Health Services</u>:**

There’s a global shortage of mental health professionals. Therapists cannot monitor patients 24/7. People often struggle between therapy sessions as they are not able to fully open up to their therapists.

**3. <u>Inaccurate Emotional Understanding in chatbots:</u>**

Most chatbots today do not understand user emotions accurately. They rely only on text input, which may not fully capture a person's emotional state.

# Hardware Requirements

## 1.Brain Signal Acquisition

- EEG Headset/Device
- Electrodes & Amplifiers
- Signal Conditioning Unit (filters noise from raw signals)

## 2.Other Sensors

- Heart Rate Sensor
- GSR Sensor (Galvanic Skin Response)
- IMU (Inertial Measurement Unit)

# Software Requirements

## 1.Brain Signal Processing & Acquisition

- OpenBCI GUI (for OpenBCI devices)
- MNE-Python (for EEG preprocessing and analysis)
- EEGLAB (MATLAB-based EEG processing)

## 2.AI/ML & Deep Learning Frameworks

- PyTorch (for deep learning models)
- Scikit-learn (for traditional ML models)
- NumPy, Pandas (for data manipulation)
- CNNs (for EEG-based pattern recognition)

## 3.Signal Filtering & Feature Extraction

- SciPy (for signal processing filters)
- NeuroKit2 (for biosignal feature extraction)
- PyEEG (for EEG feature extraction)

# Software Requirements

### 4.Frontend & Dashboard Development

- React.js (for interactive frontend)
- D3.js (for real-time data visualization)

### 5.Backend & Cloud Storage

- Node.js with Express.js (for managing requests)
- FastAPI (for ML inference)
- MongoDB (for storing patient data)

### 6.Real-Time Processing & Deployment

- Kafka / MQTT (for real-time EEG streaming)
- FastAPI (for API-based model access)

# Process Flow

The process flow of the program happens in 5 stages:

1) **User Interaction Phase:**
   The user interacts with the system using:
   - Text Input
   - EEG Sensors
   - Facial Recognition Input

2) **Data Collection and Processing:**
   Each data entered by the user is collected and processed before multi modal analysis:
   - From text based input, the user's text sentiments i.e emotions like happy, sad, angry, fear are collected.
   - EEG sensors captures EEG frequency bands (alpha, beta, gamma, theta) and runs a power sentiment analysis of human's emotions
   - Pictures captured by the user focuses on the facial key points like eyes, ears, eyebrows and on micro expressions on the face like frown, smile, saddness.

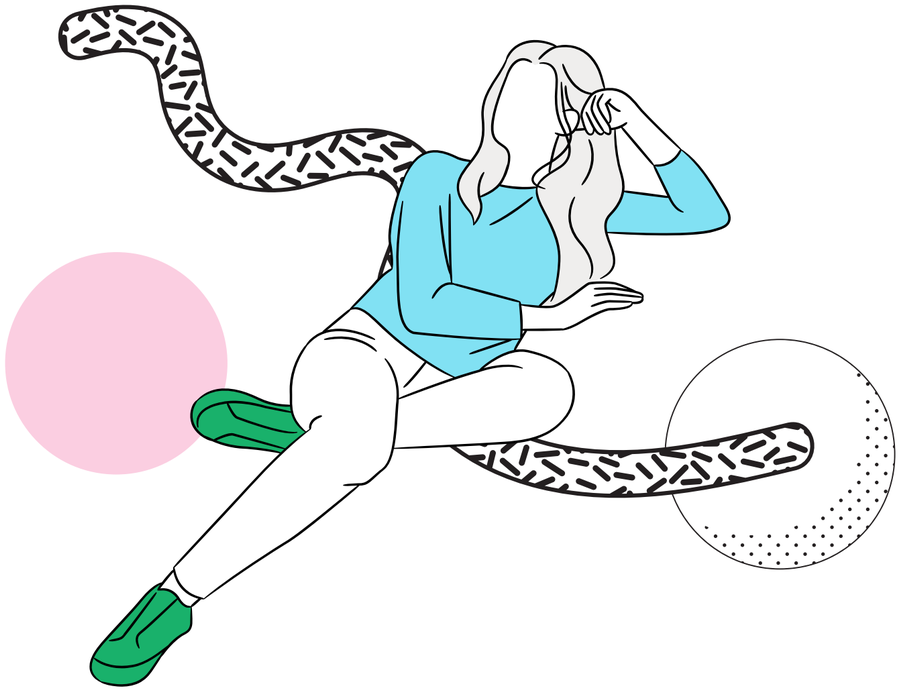
## Process Flow

The process flow of the program happens in 5 stages:

3) **Multi-modal Analysis & Emotion Classification:**
The Multi-modal Analysis combines data from all sources (Chatbot + Vision + EEG) and uses Weighted Decision Model to determine final emotional state.

4) **Chatbot Response Generation:**
AI-based chatbot adapts based on the detected mood. If the user is:
   - Happy → Engages in casual conversation.
   - Sad or Stressed → Provides mental health advice or comforting messages.
   - Distress → Suggests professional help or emergency resources.

5) **User Feedback and Learning:**
After the chatbot response, user can confirm whether it was helpful. System learns the user's preferences over time for more personalized support. Data is stored securely in the database for future improvements.



Your mental health is just as important as your physical health.

# Applications

This project plays a major role in mental health, self-awareness and personal well-being of a person:

1. It can serve as an early detection for one-to-one therapy and counselling of emotional and mental distress.
2. A therapist cannot keep track of a person's day to day activities. So it can be integrated into a person's daily routine to keep track of his/her actions.
3. People suffering through anxiety and depression are usually embarrassed to talk about it with others. This chatbot can help people overcome their insecurities about it.
4. Can act as a stress reliever for people suffering through immense stress, burnouts at workplaces, schools, colleges, etc.

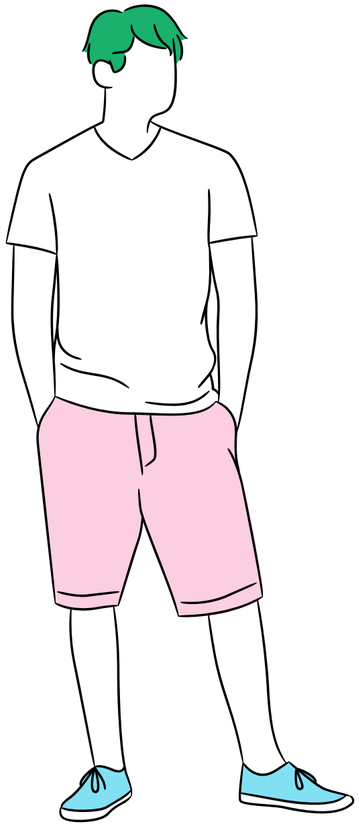
# Strengths of the Project

**-- Personalized User Experience:** AI chatbot adapts responses to match the user's emotional state.

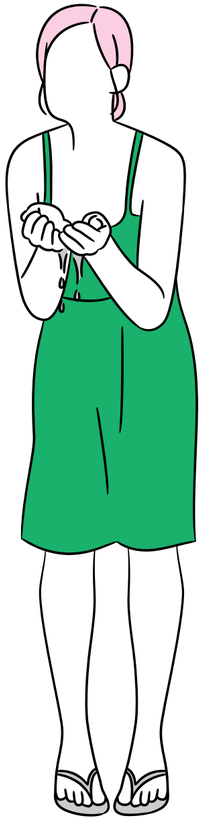
**-- Multimodal Emotion Recognition:** Uses multiple sources (visual, EEG, heart rate, voice tone) for accuracy.

**-- Potential for Mental Health Applications:** Could assist therapists, provide support for users with anxiety or depression, and offer mental wellness insights.

# Team members:



1. Sephali Simron (23BAI10086)
2. Sania Rahaman (23BAI10830)
3. Adarsh Sarathy (23BAI10877)
4. Harsh Gupta (23BAI10916)
5. Hariom Patidar (23BAI10999)



# Overview

The "**InsightYou**" system is an innovative approach to AI-driven mental health support. By integrating chatbots with multimodal emotion and mood detection, it offers a promising tool for personalized mental wellness management. However, addressing data privacy, accessibility, and accuracy challenges is essential for its successful implementation.