

Breath Ease: A Smart AI-Powered Digital Wellness and Mental Health Assistant.

1.1 Background to the Problem

In the current era, the vast advancement of technology has brought about an unprecedented change in our daily lives. In particular, the ease of access and attractive features of smartphones and social media are occupying a huge part of our time and attention. The younger generation, especially students and young professionals, spend hours after hours on platforms like Facebook, Instagram and YouTube. This excessive digital involvement is not only having a serious impact on physical health, but also on mental health.

While the benefits of technology are undeniable, its misuse has also reached alarming levels today. Studies have shown that staring at screens for a long time causes mental problems such as sleep disturbances, concentration problems, depression and anxiety (Wang et al., 2014). The results of such addiction are often not immediately understood, but gradually have a negative impact on mental imbalance and emotions.

Another important aspect is that there are still a lot of prejudices and a tendency to remain silent in society about mental health. Many people do not seek treatment for symptoms of mental illness due to fear of family or society or lack of appropriate and timely advice. As a result, minor problems can turn into serious mental illnesses over time. In many cases, technology-dependent life creates such boredom that the lack of an effective personal assistant or guide to get rid of it becomes obvious

In this context, a digital and personal assistant that understands the user's behavior, helps in time management, and presents various effective ways to restore mental peace has become the need of the hour.

○ Root Cause of the Problem

The root cause of the problem is users' lack of self-awareness about their digital habits and the lack of intelligent, immediate support. While screen time measurement apps exist, they generally do not understand the user's context and do not provide mental health support. Users see digital platforms as beneficial for entertainment, but cannot control when and how much they use. As a result, harmful digital behavior continues due to the lack of personalized feedback. In addition, social stigma and psychological fear prevent many from reaching out to therapists or support groups. In addition, current technologies are insufficient to analyze user behavior and provide effective psychological solutions. Therefore, it is imperative to adopt realistic, relevant, and mental health-supportive measures.

○ Why This Problem Is Important

According to the World Health Organization, depression will become the leading cause of disease worldwide by 2030. This indicates the need for proactive and urgent action on mental health. The COVID-19 pandemic has further increased digital dependency and stress, especially among young people and remote workers (Samanta et al., 2022). As a result, on the one hand, the risk of mental illness has increased, on the other hand, the accessibility and acceptability of traditional medical treatment methods have been limited. Therefore, an immediate, unobtrusive, artificial intelligence solution for identifying, intervening and supporting mental health at the individual level has become essential.

1.2 Solution to the Problem

○ Project Objective

The proposed solution is a mobile application called BreathEase, which will act as a personal digital wellness assistant. The app monitors the user's behavior - such as screen time, social media engagement, and sleep routine. It identifies harmful habits and behavioral patterns and provides instant artificial intelligence (AI)-powered mental wellness advice. The app includes various self-help resources, yoga, and calming music, which help reduce stress. Users can also consult with certified mental health experts anonymously if they

wish. Moreover, if a user is going through a mental health issue, the app will provide appropriate and relevant solutions or guidance according to their symptoms, so that they can get help quickly and stay mentally healthy.

○ **Proposed Solutions**

1. Behavior Monitoring

BreathEase quietly observes your daily digital habits—like how long you're on your phone, which apps you use (e.g., Facebook, YouTube), and when you use them, especially during late hours. This helps the app understand patterns that might be affecting your mental well-being.

2. Smart Alerts and Pattern Detection

When the app notices that you've been using your phone too long or at unhealthy hours, it gently reminds you to take a break. For example:

- “You’ve been scrolling for 2 hours. Take a break?”
 - “It’s midnight—consider winding down for better sleep.”
- These friendly nudges help you stay mindful of your habits without feeling judged.

3. Mental Wellness Toolkit

This toolkit is like a little wellness corner inside the app. It includes guided yoga and breathing exercises, a mood tracker, a digital journal to express your thoughts, soothing music like rain or piano sounds, and even short lessons on skills like focus and time management—all designed to help you feel more in control and calm.

4. Anonymous Consultation Services

Not everyone is comfortable opening up about mental health. That’s why BreathEase lets you talk to licensed therapists through secure chat or voice calls—without revealing your identity. It's private, stigma-free, and available when you need it.

5. AI-Based Personal Assistant

Think of this feature as a supportive friend who checks in on you. It sends helpful reminders, tracks your daily habits and goals, and gives motivational feedback—helping you build routines that support your mental wellness.

6. Emergency Support & Crisis Detection

If you’re ever in distress or showing signs of deeper emotional struggle—like a sudden shift in mood or concerning journal entries—the app can detect it. It will then guide you toward urgent support, such as helplines, SOS contacts, or immediate expert help.

7. Personalized Goals & Progress Tracker

You can set small goals like “Reduce screen time by 1 hour” or “Practice breathing daily.” The app tracks your progress and shows it in a simple, visual way—cheering you on with encouragement and helping you build healthier habits over time.

8. Mental Wellness Toolkit

BreathEase comes with a gentle set of tools designed to help you unwind and take care of your mind. You’ll find:

- Guided yoga sessions and breathing exercises that you can follow anytime to reduce stress, improve focus, and reconnect with your body and mind.
- Mood tracker and digital journaling to help you understand how you're feeling each day and reflect on your thoughts in a private space.

- Soothing music options like rain sounds, forest ambience, or soft piano melodies to calm your nerves and help you relax or sleep better.
- Micro skill-learning modules on things like improving concentration, managing time, or building emotional resilience—short, simple lessons you can practice in just a few minutes.

In short, BreathEase is more than just a mental health app - it is a supportive companion that helps us build healthy habits and a stronger sense of well-being in our busy digital lives.

○ **Business Objective**

BreathEase's core business objective is to create a smart, AI-powered mobile application that will help users maintain their mental well-being and manage their digital habits in a healthy way. In today's fast-paced, screen-dependent life, students and professionals often suffer from problems such as stress, sleep problems, and mental instability. The main cause of these problems is excessive smartphone and social media use.

BreathEase will serve as an integrated digital companion to solve this modern problem. The app will monitor the user's screen time, app usage patterns, and emotional behavior and provide personalized advice, smart reminders, and various tools for mental calm (such as yoga, breathing exercises, music, and digital journaling). Users can also speak to licensed therapists anonymously if they wish. By providing personal, confidential, and AI-based support, BreathEase will play a significant role in reducing digital addiction, increasing mental stability, and improving quality of life. Its ultimate goal is to use technology as a supportive friend to create a digital and mentally healthy lifestyle, which is very necessary in today's era.

○ **Key Functionalities and Technological Integration**

• **Feasibility:**

This app is very easy to create with today's technology. Using the AI capabilities of modern mobile phones, cloud databases such as Firebase or MongoDB, and tools like Flutter or React Native, the app can be developed quickly and effectively. As a result, users will get an accurate and smooth experience.

• **Relevance:**

Today, many of us spend excessive time on digital devices, which increases mental stress—especially among young people and people working from home. BreathEase addresses this problem, which is why it is very necessary for our time.

• **Innovation:**

Many apps can measure screen time, but the specialty of BreathEase is that it understands the user's behavior and extends a helping hand accordingly. In addition, it allows you to talk to therapists anonymously, which is a great help in mental health for many.

• **Impact Potential:**

Using this app will have good mental health, increase work efficiency, sleep better, and improve quality of life. In the long run, it will help improve our quality of life.

• **User Acceptance:**

Users will easily like this app and use it regularly due to its simple and friendly design and privacy protection.

• **Cost-Effectiveness:**

This app can be created using advanced technology at low cost, so many people will be able to easily get mental health support.

- **Societal, Health, and Cultural Impact**

- **Social Impact:**

Using the BreathEase app will reduce screen addiction and increase awareness about mental health. It will balance digital time, creating opportunities for positive changes in people's personal and social lives.

- **Health Impact:**

The app helps users maintain physical and mental well-being. Regular healthy sleep, stress reduction and yoga, breathing exercises and relaxing music will help users stay healthy and overcome the negative stressors of life.

- **Cultural Impact:**

Many societies have a stigma or negative perception about seeking psychological therapy or counseling. BreathEase breaks down these cultural barriers by providing private and confidential services, so users can get help easily and safely.

- **Legal and Security Aspects:**

The app uses secure data storage systems to protect user information and keeps user identities anonymous. It fully complies with applicable data protection laws and policies, so that users can use this service without fear..

- **Target Users and Benefits**

- **Target Group:**

- University students
- Young professionals (especially remote workers)
- High social media users
- Individuals experiencing stress, anxiety, or poor sleep

- **User Benefits:**

- Gain a deeper understanding of your digital usage and behavior, which helps you develop healthy habits.
- Get personalized advice and encouragement on time to help you move forward on your path to change.
- Reduce anxiety and stress, improve focus and performance, and increase your performance in everyday life.
- Get the opportunity to safely and freely consult with mental health experts while maintaining confidentiality, which eliminates social shame.
- Understand and track your own mental and behavioral development, which will ensure long-term well-being.
- Encourage healthy lifestyle habits such as regular sleep, yoga, and mental relaxation, which will improve your overall quality of life.
- Reduce feelings of loneliness or isolation, and increase social connection and self-confidence.
- A personal assistant will always be by your side, who will regularly monitor your well-being and provide advice and reminders when needed.

- **Scientific Contribution**

BreathEase plays a key role in the scientific development of digital mental health technology, combining user behavior-aware and personalized wellness tools with cutting-edge artificial intelligence. Its main scientific contributions are:

- **Development of user behavior-aware digital wellness tools:** Providing personalized and adaptive wellness interventions through regular monitoring of user digital habits, which has opened up new directions in mental health support.
- **Innovation in preventive mental health systems:** This app emphasizes early detection and timely intervention rather than reactive problem solving, which has brought a new perspective to mental health care.
- **AI-powered alert system for mental fatigue and emotional risk:** BreathEase uses advanced AI algorithms to detect early signs of stress and emotional fatigue, ensuring fast and effective support.
- **Ethical and safe mobile health technology:** User privacy and data security are protected with utmost importance and comply with applicable policies and laws, setting a standard for future mobile health apps.

Furthermore, the entire system architecture, algorithmic framework, user behavior model, and evaluation process will be documented in detail. This will play a key role in future research and integration with national health systems, paving the way for the sustainability and expansion of the project.

○ Literature Review

There is currently a lot of research on the relationship between digital use and mental health. Various researchers have shown how the use of mobile and digital devices can help us understand our state of mind.

The **NCBI article (2022)** highlights the growing role of Artificial Intelligence (AI) in mental health care, particularly in diagnosis and treatment support. AI tools improve efficiency and accessibility but raise concerns about data privacy, ethical use, and potential bias. The article emphasizes that AI should complement, not replace, human clinicians to ensure effective and ethical mental health care.

The **UC Berkeley School of Public Health (2023)** critically examines the growing enthusiasm surrounding AI applications in mental health, cautioning that AI is not a standalone solution. Although AI tools such as chatbots and digital screening systems offer scalable support and data processing advantages, they lack the emotional intelligence and nuanced understanding necessary for effective mental health care. The article highlights that AI often fails to capture complex human emotions and social contexts, which are essential for accurate diagnosis and meaningful therapeutic engagement.

In an interview published by the UC Berkeley School of Public Health, **Dr. Jodi Halpern (2024)** argues that AI cannot fully understand human emotional nuance. She points out that while AI can assist with mental health screening and management, it should not be viewed as a replacement for compassionate, human-based care.

A June 2025 study by **Stanford HAI researchers Jared Moore and Nick Haber** revealed critical risks associated with unregulated use of large language models in therapy. Their research found that popular mental health chatbots sometimes gave dangerous or inappropriate responses to users in distress, such as those experiencing suicidal ideation. This highlights the dangers of over-relying on AI without clinical oversight.

Wikipedia (2024) provides a general overview of AI applications in mental health, including diagnostic prediction, suicide risk assessment, treatment adherence tracking, and chatbot-based support. However, it also notes the challenges around privacy, ethical deployment, and the lack of transparency in AI decision-making.

Finally, a recent **article on ScienceDirect (2024)** outlines the potential of AI to personalize care, detect early warning signs of mental illness, and support therapeutic intervention. However, it cautions that these benefits come with major concerns about data security, fairness, and the loss of human empathy.

- **Existing Solutions and its Limitation:**

Headspace:

Provides powerful meditation and mindfulness guidelines, but doesn't track users' daily digital behavior or provide smart, timely alerts.

YourHour:

Keeps accurate track of screen time, but doesn't offer tools or relevant advice to improve mental well-being.

Wysa:

Provides AI-powered chat therapy, but doesn't offer pattern recognition or personal monitoring of users' practical behavior.

Calm:

Provides calming music and relaxation tools, but doesn't adapt to the user's behavior or emotional state, meaning it's not adaptive.

- **How BreathEase is Better:**

BreathEase is more effective than other apps because it combines many important features. Many apps only do one or two things - like Headspace only offers meditation, YourHour only tracks screen time, and Wysa only provides AI chat therapy. But BreathEase has user behavior monitoring, real-time smart alerts, yoga and music for mental well-being, mood tracker, anonymous therapy services, and many other essential features all in one. With these versatile features together, users get a complete and integrated solution for their mental and digital health, which is difficult to find in any other single app. As a result, BreathEase not only solves problems, but also provides early warning and ensures long-term well-being.

- **Project Challenges and Solutions**

Artificial intelligence (AI) does not yet fully understand emotions, mental states, and sensitivities like humans. As a result, it may react incorrectly in crisis situations.

- **Possible solution**

To have a system in place where AI connects users with a live therapist in complex or critical situations.

- **Privacy and security of personal data**

Users may be hesitant to share mental health data unless the security and confidentiality of the data is ensured.

- **Possible solution**

Using encrypted databases (such as Firebase), data anonymization, and transparent privacy policies.

- **Lack of clinical supervision**

AI-based advice is at risk of being wrong without the direct involvement of therapists or mental health experts.

- **Possible solution**

Partner with therapists to provide regular content review and consultation opportunities.

- **Social and cultural barriers**

In many societies, talking about mental health is still considered shameful or socially unacceptable.

- **Possible solution**

Creating app content according to local language, culture, and social sensitivities and protecting privacy.

- **Addiction to excessive app use**

Some people may become dependent on technology while using apps to improve their mental health.

- **Possible solution**

Setting daily usage time limits, including offline activities (such as yoga).

- **Maintaining regular user engagement**

Many people may initially lose interest in using apps, but over time.

- **Possible solution**

Adding gamification, reward systems, daily mood streaks or progress trackers.

- **AI bias and misjudgment**

If the data used for training is not diverse, AI can make incorrect analyses or show bias towards one type of user.

- **Possible solution**

AI models are regularly updated and reviewed, and trained with diverse user data.

2. SOFTWARE DEVELOPMENT LIFE CYCLE

2.1 Process Model

We chose the Scrum Model for BreathEase app development because it is a step-by-step approach where each feature is developed in a separate Sprint. In Scrum, each Sprint has a predetermined duration (usually 1 to 4 weeks), resulting in a usable feature or part being completed within a specific time frame. This ensures clear deadlines, reduces time wastage, and makes it easier to measure progress. Daily meetings are an important aspect of Scrum, where team members provide work updates and share issues. This results in transparency within the team, faster problem resolution, and improved teamwork. As a mental health app, BreathEase has several sensitive features (such as AI suggestion, emergency alert), which require regular feedback and iteration-Scrum ensures this. Feature-based division, time-bound Sprints, and team-based communication make this model the most suitable for BreathEase.

SCRUM PROCESS

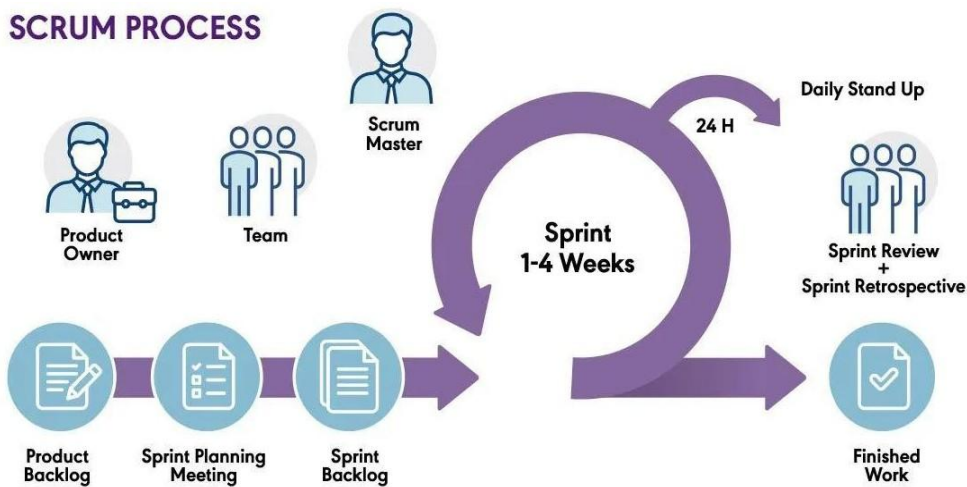


Image Source: <https://www.pm-partners.com.au/insights/the-agile-journey-a-scrum-overview/>

○ Why Not other process Model?

There are different models in software development, but not all of them are equally effective for every project. For example, the Waterfall model is a sequential approach where one step cannot be completed before the next step. It is suitable for fixed and clear requirements, but it is not flexible for projects like BreathEase where requirements can change quickly and user feedback is very important. The V-Model is an advanced version of Waterfall, where each development step has a testing phase associated with it. It ensures the quality of the development, but is not suitable for rapid change and it is difficult to update features quickly according to changing user needs. The Incremental model builds the software in small parts and completes it step by step. Although it has some flexibility, it lacks regular and close communication between the team and it is difficult to incorporate user feedback in a timely manner. The Prototype model quickly creates an initial demo and develops from it with feedback. While this is effective for small projects, it can be a waste of time and resources for large and complex projects. Extreme Programming (XP) is suitable for small teams where the emphasis is on maintaining high coding standards. XP will not be fully effective on feature-rich projects like BreathEase because of the large team size and scope of work. DSDM (Dynamic Systems Development Method) is a rapid application development framework that ensures fast delivery within time and budget. However, it is mostly suitable for large organizations or work within a specific structure and may seem a bit complex and cumbersome for startups or mid-sized projects like BreathEase .

2.2 Project Role Identification and Responsibilities

• Product Owner

The success of the product is primarily the responsibility of the Product Owner.

• Responsibilities:

The Product Owner defines and prioritizes the product backlog, which reflects user needs and stakeholder expectations. He clearly communicates the vision for BreathEase to the team and determines which features will be developed first (such as screen time alerts, mental health tools, behavioral alerts, etc.). He acts as the main point of contact for stakeholders and updates the backlog based on feedback and business goals, so that the product is effective in supporting users' mental health.

• Scrum Master

The Scrum Master ensures that the team adheres to the Scrum rules and removes any obstacles.

- **Responsibilities:**

The Scrum Master supports the BreathEase team in Scrum practices, conducts sprint planning, reviews, and retrospectives. He ensures that each sprint goal (such as screen time detection or clam music integration) is achieved smoothly. He provides training and support to enhance the team's self-organization skills and build a culture of continuous improvement.

- **Scrum Team**

The development team works together to create product increments to meet the sprint goals.

- **Responsibilities:**

The Scrum Team designs, develops, tests, and delivers new features of BreathEase in each sprint. For example, digital behavior detection, consultation interfaces, yoga or meditation modules. They work self-organized, actively participate in sprint planning and reviews, and ensure that each increment has a positive impact on mental health.

- **Customers**

The users of the BreathEase app play a vital role in its development and success.

- **Responsibilities:**

Users participate in feature testing, such as anonymous consultations or pattern breaking alerts, and provide feedback on what is working and what needs improvement. Based on their input, features are prioritized so that the app is effective and relevant to the user's mental needs.

- **Management**

The management team overseeing the development of BreathEase has some important responsibilities.

- **Responsibilities:**

The management team sets the strategic goals of the project, allocates resources, and coordinates with stakeholders. They provide the team with the necessary tools and support to create a quality digital mental health assistant. They also ensure user data privacy and legal issues. They provide direction to manage risk and maintain quality.

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