# INVENTION DISCLOSURE FORM

Details of Invention for better understanding:

**1. TITLE:** **Wellness In Hand - AI Smart Mental Fuel Tracker.**

**2. INTERNAL INVENTOR(S)/ STUDENT(S):** All fields in this column are mandatory to be filled

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**3. DESCRIPTION OF THE INVENTION:**

**Wellness In Hand** is an AI-powered system that predicts social exhaustion by monitoring user’s social interactions, biometric data, and behavioural patterns. The technology uses sensor fusion and machine learning to calculate a Social Battery Score in real time and recommends customised recharge activities based on energy patterns.

* Wellness In Hand Tracker uses wearable technology and smartphone sensors to measure social energy levels by identifying movement, emotional tone, conversation frequency, and physiological stress signs. The system provides AI-driven social coaching, gamified energy tracking, and selective social battery sharing to help users balance engagement and recovery
* Through context-aware recommendations, this tracker suggests low-cost outdoor activities, relaxation content, and social matchmaking experiences tailored to user fatigue. The solution dynamically adjusts notifications, interactions, and engagement settings to prevent burnout while fostering optimal social well-being.
* In addition to its core functions, Wellness In Hand Tracker integrates an emotional AI assistant that simulates empathetic, context-aware conversations based on the user's emotional and social exhaustion levels. This AI provides real-time verbal or text-based support during high-stress moments, offering personalized suggestions for managing emotional burnout or navigating social anxiety. The AI adapts its tone, style, and interaction depth depending on the user’s current emotional and energy state, ensuring that users receive tailored conversational guidance for effective emotional regulation.

1. **PROBLEM ADDRESSED BY THE INVENTION:**

Modern college students and professionals struggle with social fatigue due to excessive interactions, digital communication overload, and social commitments. Traditional wellness applications only provide mental health tracking but fail to offer real-time socialenergy monitoring and adaptive recharge strategies. As a result, individuals often experience burnout, social anxiety, and inefficient time management, leading to reduced productivity and well-being.

* Following are the major problems which are addressed by the invention:
* **Lack of Social Energy Awareness** – Users do not have a structured way to track and manage their social energy, leading to unintentional burnout**.**
* **One-Size-Fits-All Recharge Methods –** Current wellness apps suggest generic self-care routines without personalized AI-driven recommendations tailored to user behaviour and biometric data.
* **No Predictive Exhaustion Alerts –** Existing mental health solutions react after exhaustion occurs rather than predicting social depletion in advance.
* **Digital Interaction Overload –** Excessive notifications, group chats, and online meetings drain mental energy without an adaptive mechanism to regulate social engagement dynamically.
* **No Selective Social Battery Sharing** – Users cannot inform close contacts about their energy levels in an automated, non-intrusive manner.
* **No Affordable Social Recharge Options** – College students often struggle to find budget-friendly activities that help them recharge socially without financial strain.
* **Lack of Gamified Motivation** – Mental energy tracking lacks an engaging,interactive approach, making self-care management less appealing to younger users.

1. **OBJECTIVE OF THE INVENTION**

The **Wellness In Hand Tracker** is designed to transform how individuals understand and manage their social energy, using AI, sensor fusion, and real-time data from wearables and smartphones.

It aims to offer predictive, personalized, and empathetic support for maintaining emotional and social well-being.

* **Real-Time Social Energy Tracking –** To provide users with a dynamic "Social Battery" indicator that visualizes energy depletion and recovery based on interactions, biometric signals, and behavioural patterns.
* **AI-Powered Personalized Recharge Suggestions –** To recommend tailored activities (e.g., relaxation, outdoor adventures, social breaks) based on a user’s energy trends, helping them recover efficiently.
* **Predictive Exhaustion Prevention** – To anticipate social fatigue before it happens using machine learning models that analyse historical interaction trends and biometric fluctuations.
* **Gamification for User Engagement** – To introduce an interactive Social XP System where users earn experience points and unlock achievements for maintaining balanced social energy levels.
* **AI-Driven Social Coaching** – To offer an intelligent virtual assistant that provides real-time suggestions on when to socialize, take breaks, or recharge based on detected fatigue.
* **Wearable-Integrated Energy Alerts** – To leverage smartwatches or fitness bands for haptic and visual notifications, signaling social exhaustion in a non-intrusive manner.
* **Selective Social Battery Sharing** – To allow users to automatically notify trusted contacts when their social energy is low, enabling better communication and boundary-setting.
* **Context-Aware Recharge Adventures** – To suggest budget-friendly outdoor activities**,** social events, and fun college experiences tailored to a user’s social energy levels and financial constraints.
* **AI-Powered Relaxation Playlists** – To dynamically generate music, guided meditation,or breathing exercises that align with the user's real-time exhaustion state.

This invention ensures a holistic approach to social well-being, helping users avoid burnout, improve time management, and enhance their overall quality of life through intelligent, data-driven insights.

**C. STATE OF THE ART/ RESEARCH GAP/NOVELTY:** Describe your invention fulfil the research gap?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sr. No. | Patent I’d | Abstract | Research Gap | Novelty |
|  | **US20180242860A1** | Describes a wearable monitoring device with physiological and motion sensors that transmits data to generate targeted ads. | Focuses on sensor data for ads, without analyzing emotional or mental states. Lacks AI-based behavioral modeling, mood classification, and burnout prevention. | Wellness In Hand Tracker uses AI to predict social burnout, analyzes real-time mood, and provides personalized recharge suggestions. It integrates gamification, XP, achievements, and an emotional assistant for proactive mental wellness management. |
|  | WO2020210176A1 | A system for emotion-based health tracking using voice analysis and biometric data to recommend health interventions. | Focuses on emotional state in isolation and does not consider social interaction frequency, movement, or gamified energy models. No selective sharing or social boundary features | Wellness In Hand Tracker integrates social behavior, physical cues, and emotional tone to deliver AI-driven social coaching and gamified wellness tracking, supporting proactive and empathetic mental health regulation. |
|  | US10614724B2 | A system for managing general wellness, lifestyle planning, and health improvement. It provides personalized recommendations and tracks user compliance with wellness strategies to improve long-term health. | Focuses on physical wellness and general health but lacks social interaction and emotional fatigue tracking. No prediction for burnout or emotional exhaustion, and no wearable-triggered interventions for emotional well-being. | Wellness In Hand Tracker adds real-time social energy analytics powered by AI to detect emotional exhaustion. It predicts fatigue, provides personalized recharge suggestions, integrates gamification, and uses wearable data for energy alerts. The system also incorporates emotional AI support for mood-aware coaching and selective energy sharing, enhancing social and emotional well-being management. |

1. **DETAILED DESCRIPTION:**

The **Wellness In Hand** **Tracker** is a wearable-integrated AI system that monitors social interactions, analyzes biometric data, predicts mental fatigue, and offers real-time recharge recommendations. Utilizing deep learning models, it evaluates a user's energy levels by analyzing speech tone, heart rate variability, and movement patterns. The system generates a Social Battery Score and provides personalized activity suggestions, AI-driven coaching, and gamified features to help users manage social exhaustion effectively. By combining real-time tracking, predictive analytics, and adaptive feedback mechanisms, the Wellness In Hand Tracker offers a proactive solution for managing mental energy.

* **Data Collection Module:**
  + Monitors voice tone (without recording), social interactions, and biometric data.
  + Uses smartphone sensors (microphone, accelerometer, Bluetooth proximity) for real-time tracking.
  + Integrates with wearables (smartwatch, fitness band) to track heart rate variability (HRV) and skin conductance.
* **AI-Powered Social Energy Prediction Module:**
  + Uses Natural Language Processing (NLP) models to detect conversational tone and fatigue.
  + Uses machine learning algorithms to analyze biometric signals like heart rate variability (HRV) and stress markers.
  + Predicts future social exhaustion using a Recurrent Neural Network (RNN), adapting to user behaviour over time.
  + Categorizes users into energy-recharge personas (e.g., introvert, extrovert, ambivert) using K-Means clustering.
  + Generates a real-time "Social Battery Score" (e.g., 100% = fully recharged, 0% = socially exhausted).
  + Predicts future social exhaustion based on interaction trends and biometric data, enabling pre-emptive recharge strategies.
* **User Interface Module:**
  + Displays real-time social energy level as a battery indicator to visualize energy depletion and recovery based on interactions, biometric data, and behaviour.
  + Provides alerts when social exhaustion is detected.
  + Dynamically adjusts digital interactions by modifying notifications and conversation formats.
  + Offers context-aware recharge recommendations based on user location, time of day, and previous recharge effectiveness.
  + Gamifies energy management with experience points and achievement levels.
  + Integrates with an AI-powered virtual coach that provides real-time social engagement guidance.
* **Wearable Feedback Mechanism:**
  + Uses haptic (vibration) or visual (LED color-coded) alerts to indicate energy depletion.
  + Allows users to customize alert intensity according to personal preference.
* **Selective Social Energy Sharing:**
  + Enables users can share their energy status with trusted contacts.
  + Includes an auto-reply feature that sends customized responses when social energy is low.
* **Context-Aware Recharge Adventures:**
  + Suggests budget-friendly outdoor activities, social events, and college experiences tailored to a user’s current social energy levels and financial constraints.
* **AI-Powered Relaxation Playlists:**
  + Automatically generates relaxation content (music, guided breathing, meditation) based on detected exhaustion levels.
  + Integrates with Spotify, YouTube, and wellness apps for a seamless experience

**Use-Case Scenarios:**

* **Scenario 1:** Introvert Navigating a College Fest
  + During a large college festival, an introverted user begins to feel overwhelmed in a noisy crowd.
  + The Wellness In Hand Tracker detects changes in skin conductance and movement patterns signaling stress.
  + It notifies the user: “Energy levels are low. Want to explore a quiet zone or try a mindfulness break?”
  + A nearby recharge zone or music therapy corner is suggested to help them reset.
* **Scenario 2:** Preventing Burnout Before Exams
  + As exams approach, a student juggles revision sessions, peer study groups, and family calls.
  + The Wellness In Hand Tracker’s prediction model anticipates an upcoming energy dip based on interaction trends.
  + It proactively prompts: “You’re approaching social exhaustion. Consider a digital detox evening to stay sharp.”
  + Relaxation playlists and a guided breathing session are offered via connected wellness apps.
* **Scenario 3:** College Student Managing Social Fatigue
  + A student has back-to-back classes and social interactions.
  + Their smartwatch detects increased heart rate and declining engagement signals.
  + The system notifies them: "Your social battery is at 30%. Consider a recharge break!"
  + It suggests a Doodle (sketch) & music session or a low-cost cafe meetup.

1. **RESULTS AND ADVANTAGES:**

* **Results:**
* Successfully tracks and predicts social fatigue using AI and biometric data.
* Provides real-time alerts and AI-driven recharge recommendations.
* Improves user well-being by balancing social interactions with recovery.
* Reduces burnout by proactively managing social energy levels.
* Enhances user experience through gamification and personalized suggestions.
* **Advantages:**
* Enhanced Self-Awareness

The Social Battery Indicator provides users with a clear, real-time visual of their energy levels, helping them recognize and understand emotional fatigue before it escalates.

* Personalized Well-Being Support

AI-powered insights tailor recharge activities (like music, meditation, or outdoor time) to individual needs, enabling faster, more effectiverecovery from social exhaustion.

* Increased Engagement Through Gamification

The Social XP System transforms well-being into an engaging journey. Users stay motivated through rewards, progress levels, and achievements tied to healthy energy management habits.

* Better Communication Boundaries

The Social Battery Sharing feature allows users to set healthyboundaries by automatically informing trusted friends or family about low energy levels.

* Multisensory Relaxation Aid

The system’s AI-powered relaxation playlists generate custom content to match real-time moods and fatigue, aiding emotional regulation and mental clarity.

* Holistic Lifestyle Balance

By combining biometric data, behavioural tracking, and intelligent feedback, the Wellness In Hand Tracker offers a 360° solution to balance social, emotional, and mental energy throughout daily life.

**F. EXPANSION:**

* **Enhancing System Intelligence & Personalization:**

To keep the Wellness In HandTracker at the forefront of empathetic tech for social energy management, future iterations should incorporate multi-modalsensing and advanced AI learning models. In addition to biometric signals from wearables, the system can integrate:

* Voice tone analysis, micro-expressions, and eye movement tracking to detect subtle emotional changes.
* Context-aware AI models that adapt not just to behavior, but also to environmental cues such as time of day, weather, academic calendar events, or social proximity.
* **Driving Behavioural Impact & Well-being Transformation:**

Beyond just tracking and alerts, the Wellness In Hand Tracker can become a personal behaviour change agent:

* Introduce longitudinal emotional health charts that show monthly or semester-based trends to help users reflect and realign.
* Include micro-goals and milestone tracking for social engagement, recharging habits, and personal development.
* Offer community-led recharge challenges, such as “2-Day Solo Recharge Journey” or “7-Day Energy Balance Streak”, fostering collective well-being.

**G. WORKING PROTOTYPE/ FORMULATION/ DESIGN/COMPOSITION:**

**Start Interaction**

**Monitor Engagement**

**Analyze Biometrics & Tone**

**Detect Mental Fatigue**

**Update Social Battery**

**Send Alerts**

**Suggest Recharge**

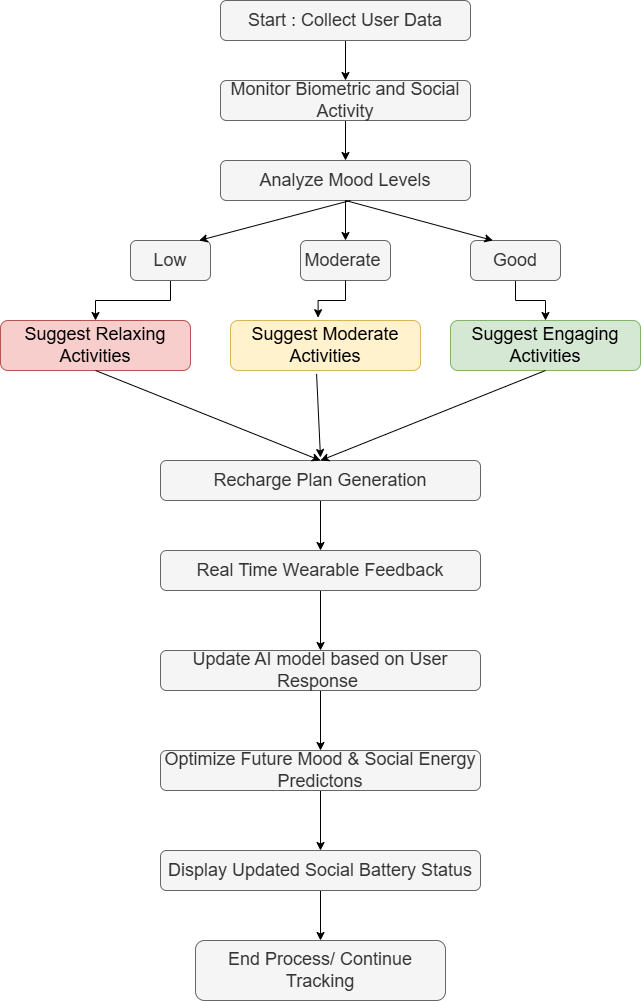
**Gamify Tracking**

**Enable Energy Sharing**

**AI Relaxation Tips**

**Optimize Engagement**

**End Interaction**



**G. EXISTING DATA:** Since proposed idea focuses on AI-driven patent evaluation rather than clinical research, the comparative data primarily involves existing patent search and novelty detection methods.

**USE AND DISCLOSURE (IMPORTANT):**

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| --- | --- | --- |
| 1. Have you described or shown your invention/ design to anyone or in any conference? | YES ( ) | NO (✓) |
| 1. Have you made any attempts to commercialize your invention (for example, have you approached any companies about purchasing or manufacturing your invention)? | YES ( ) | NO (✓) |
| 1. Has your invention been described in any printed publication, or any other form of media, such as the Internet? | YES ( ) | NO (✓) |
| 1. Do you have any collaboration with any other institute or organization on the same? Provide name and other details. | YES ( ) | NO (✓) |
| 1. Name of Regulatory body or any other approvals if required. | YES ( ) | NO (✓) |

5. Provide links and dates for such actions if the information has been made public (Google, research papers, YouTube videos, etc.) before sharing with us.

-> Not Publicly Available

6. Provide the terms and conditions of the MOU also if the work is done in collaboration within or outside university (Any Industry, other Universities, or any other entity).

-> N/A (No Collabration)

7. Potential Chances of Commercialization.

The **AI Smart Mental Fuel Tracker** (Wellness In Hand Tracker) presents significant commercial potential across the mental wellness, wearable technology, and AI-driven health monitoring industries. With growing awareness around social fatigue, digital burnout, and the need for personalized mental well-being tools, the Wellness In Hand Tracker offers a timely and scalable solution. This system can be commercialized through multiple avenues:

**University & Campus Wellness Initiatives**

* Provide subscription-based or licensed access to colleges and universities.
* Enhance student life by helping them balance academic loads, extracurriculars, and social life through proactive energy tracking.

**B2C Market Launch (Mobile App + Wearables)**

* Launch as a freemium mobile app integrated with popular wearable devices (Apple Watch, Fitbit, etc.).
* Offer tiered subscriptions: free version with essential features; premium plans with AI-driven social coaching, predictive fatigue alerts, and personalized recharge journeys.

**B2B Partnerships**

* Collaborate with wearable device manufacturers for native integration of social battery features within existing health-tracking ecosystems.
* Co-branding or licensing options with tech firms, wellness platforms, and smart device companies.

**Gamified AI Coaching & Community Engagement**

* Introduce gamification layers (XP points, rewards, social achievements) to drive daily engagement.
* Expand into social wellness communities with shareable progress, peer encouragement, and smart nudges for balanced interaction.

8. List of companies which can be contacted for commercialization along with the website link.

Below is a list of potential companies that can be contacted for commercialization and partnership opportunities:

1. **Calm –** AI-driven mental wellness app for stress management and relaxation  
    <https://www.calm.com>
2. **Apple Health (Apple Inc.) –** Health and wellness tracking through Apple Watch integration  
   <https://developer.apple.com/healthkit/>
3. **Headspace –** Meditation and mental health coaching for social energy management  
    <https://www.headspace.com>
4. **Fitbit (Google) –** Wearable health tracking and AI-driven wellness solutions  
    <https://www.fitbit.com>
5. **WHOOP –** Biometric tracking and recovery insights for mental and physical well-being  
   <https://www.whoop.com>

9. Any basic patent which has been used and we need to pay royalty to them.

N/A

10**. FILING OPTIONS:**

The **AI Smart Mental Fuel Tracker** is a novel AI-powered system designed for tracking an individual's mental energy levels, social battery, and emotional well-being through wearable technology, AI-driven mood analysis, and personalized recommendations. This invention introduces an innovative approach to monitoring social fatigue, stress levels, and mental resilience in real-time using physiological and behavioral indicators.

Given the technological novelty and potential industry impact, this invention is suitable for the following patent filing options**:**

* **Provisional Patent Filing** – Recommended for securing an early priority date while further refining the AI models, wearable device integration, and software features.
* **Complete Patent Filing** – The invention is well-documented with detailed methodologies, sensor-based tracking, and AI-powered recommendation algorithms, making it ready for full patent protection.
* **PCT (Patent Cooperation Treaty) Filing** – Suitable for international patent protection, especially given the global market potential in wearable health tracking, corporate wellness solutions, and AI-based mental health technology.

A detailed description of the system architecture, AI algorithms, wearable sensor integrations, and recommendation framework has been included to support this filing.

11. **KEYWORDS:**

Social Battery Tracker, Mental Energy Monitoring , AI-Powered Mood Analysis , Wearable Wellness Tech , Personalized Mental Health AI , Stress and Fatigue Prediction , Emotional Well-being Analytics , Real-time Mood and Energy Tracking , AI-Driven Social Fatigue Assessment, Personalized Wellness Suggestions.