पेटेंट कार्यालय
शासकीय जर्नल

OFFICIAL JOURNAL
OF
THE PATENT OFFICE

निर्गमन सं. 42/2025	शुक्रवार	दिनांक: 17/10/2025
ISSUE NO. 42/2025	FRIDAY	DATE: 17/10/2025

पेटेंट कार्यालय का एक प्रकाशन
PUBLICATION OF THE PATENT OFFICE

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :14/09/2025

(21) Application No.202541087310 A

(43) Publication Date : 17/10/2025

(54) Title of the invention : AI-Powered IoT based Wearable Health Monitoring System with Real-Time Anomaly Detection and Emergency Alerts

(51) International classification	:A61B0005000000, G16H0050300000, G16H0050200000, A61B0005020500, G06N0003045000
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	: :01/01/1900
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

(71)**Name of Applicant :**
1)Mr. Sathish Krishna Anumula
Address of Applicant :Mr. Sathish Krishna Anumula ,Senior Enterprise Architect, IBM Corporation, Hyderabad, Ranga Reddy, Telangana - 501511 sathishkrishna@gmail.com Telangana India
2)Kondapakala Indumathi
3)Mr .M.Varasundar
4)Mrs.Sindhu Rajesh Gaikwad
5)Dr. Sundar Rajan S
6)Mrs.M.Abinaya
7)Mr. Prashant Laxmanrao Mandale
8)Mr. Vinayak Vijay Palmur
9)Dr. Gurram Veera Raghavaiah
(72)**Name of Inventor :**
1)Mr. Sathish Krishna Anumula
2)Kondapakala Indumathi
3)Mr .M.Varasundar
4)Mrs.Sindhu Rajesh Gaikwad
5)Dr. Sundar Rajan S
6)Mrs.M.Abinaya
7)Mr. Prashant Laxmanrao Mandale
8)Mr. Vinayak Vijay Palmur
9)Dr. Gurram Veera Raghavaiah

(57) Abstract :
ABSTRACT The present invention discloses an AI-Powered IoT-based Wearable Health Monitoring System designed to continuously track vital physiological parameters of users in real-time, leveraging advanced artificial intelligence algorithms for anomaly detection and automated emergency alerts. The system integrates wearable sensors embedded in a compact, ergonomic device that monitors key health metrics including heart rate, blood oxygen saturation (SpO2), electrocardiogram (ECG) signals, body temperature, blood pressure, and activity levels. Data collected from these sensors is transmitted via IoT protocols to a cloud-based analytics platform, where machine learning models—trained on diverse datasets encompassing normal and pathological physiological patterns—analyze incoming streams for deviations indicative of potential health risks such as arrhythmias, hypoxia, fever spikes, or sudden cardiac events. The core innovation lies in the real-time anomaly detection module, which employs a hybrid AI framework combining convolutional neural networks (CNNs) for signal processing and recurrent neural networks (RNNs) with long short-term memory (LSTM) units for temporal pattern recognition. This enables the system to achieve over 95% accuracy in identifying anomalies within seconds, far surpassing traditional threshold-based monitoring. Upon detection, the system triggers multi-tiered responses: (1) haptic and auditory alerts to the user for immediate self-intervention; (2) escalation to designated caregivers via SMS, app notifications, or voice calls with summarized health data; and (3) integration with emergency services through geolocation-enabled alerts to nearest medical facilities. Furthermore, the invention incorporates edge computing capabilities within the wearable to ensure low-latency processing during network disruptions, enhancing reliability in remote or mobility-constrained scenarios. Privacy is safeguarded through federated learning techniques, allowing model updates without centralizing sensitive user data. The system's modular architecture supports customization for diverse demographics, including elderly patients, athletes, and chronic disease sufferers, promoting proactive healthcare management. This invention addresses critical gaps in existing wearables by fusing IoT connectivity with explainable AI, reducing false positives to under 5% and enabling predictive interventions that could prevent adverse events. Preliminary simulations and prototype testing demonstrate a 30% improvement in response times for emergencies compared to commercial alternatives. By democratizing access to advanced health surveillance, the system empowers individuals toward preventive wellness, potentially lowering healthcare costs and improving outcomes in resource-limited settings.

No. of Pages : 12 No. of Claims : 6