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G.A.R.6
 [See Rule 22(1)]
 RECEIPT



Docket No 17573

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To
 Sudarshana Bandyopadhyay

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CBR Detail:

Sr. No.	App. Number	Ref. No./Application No.	Amount Paid	C.B.R. No.	Form Name	Remarks
1	E-106/2358/2025/KOL	202531073838	0	----	FORM28	
2	202531073838	TEMP/E-1/82592/2025-KOL	1600	9652	FORM 1	ADAPTIVE AI WOUND HEALING MONITORING SYSTEM
3	E-12/1489/2025/KOL	202531073838	2500	9652	FORM 9	----

TransactionID	Payment Mode	Challan Identification Number	Amount Paid	Head of A/C No
N-0001723253	Online Bank Transfer	0308250011733	4100.00	1475001020000001

Total Amount : ₹ 4100.00

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(57) Abstract :

The present invention pertains to an Adaptive Artificial Intelligence (AI) Wound Healing Monitoring System comprising: a smart, flexible wound dressing fabricated from biocompatible, breathable material embedded with a multi-parametric sensor array configured to measure moisture content, temperature, pH level, oxygen saturation, and biochemical markers indicative of infection or inflammation integrated with a compact processing module configured to receive sensor data wirelessly from the sensor array, the module comprising a core AI engine with adaptive machine learning algorithms for real-time analysis of wound data and patient-specific factors to generate a personalized baseline healing profile, a cloud-based communication platform for securely transmitting processed information, including early warning alerts, healing rate predictions and recommended interventions, to healthcare providers and an intuitive mobile application and web-based dashboard for real-time access to patient-specific insights.

No. of Pages : 18 No. of Claims : 10

FORM 2 THE PATENTS ACT, 1970 (39 OF 1970) AND THE PATENTS RULES, 2003 COMPLETE SPECIFICATION (See section 10; rule 13)
1. TITLE OF THE INVENTION ADAPTIVE AI WOUND HEALING MONITORING SYSTEM
2. APPLICANT (a) NAME: SRJX RESEARCH AND INNOVATION LAB LLP (b) NATIONALITY: India (c) ADDRESS: Plot No - 3E/474, Sector-9, CDA, Post- Markat Nagar, Cuttack-753014, Odisha, India
3. PREAMBLE TO THE DESCRIPTION The following specification particularly describes the invention and the manner in which it is to be performed.

FIELD OF THE INVENTION

The present invention relates to a monitoring system in medical field. The present invention more specifically relates to a wound healing monitoring system that employs adaptive artificial intelligence (AI) and real-time multi-parameter sensing for continuous, personalized assessment of wound conditions.

BACKGROUND OF THE INVENTION

Wound management constitutes a critical aspect of contemporary healthcare, particularly in the treatment of chronic and complex wounds such as diabetic foot ulcers, pressure injuries, venous leg ulcers, and post-surgical incisions. These conditions often require long-term clinical monitoring and are associated with significant risks, including infection, necrosis, impaired healing, limb amputation, and increased morbidity. Conventional wound assessment methodologies predominantly rely on manual examination and subjective interpretation by healthcare professionals during scheduled clinical visits. Such assessments are inherently intermittent, non-continuous, and prone to variability in interpretation, which frequently leads to delayed detection of complications, prolonged recovery periods and elevated treatment costs.

In recent years, technological advancements have enabled the development of wound dressings embedded with sensor systems capable of measuring critical biophysical and biochemical parameters, including moisture levels, pH levels, temperature and tissue oxygenation. While these systems represent a meaningful step toward digitized wound monitoring, their utility remains constrained by the delivery of unprocessed or minimally processed raw data. The analytical burden thus remains on the clinician, who must interpret disparate data streams and manually derive clinical insights. Additionally, existing systems typically provide isolated data snapshots, lacking the ability to contextualize trends or account for the temporal evolution of the wound-healing process.

Artificial Intelligence (AI) and more specifically machine learning, presents a promising avenue to enhance wound care by enabling continuous data

interpretation and predictive modelling. However, most existing AI-integrated healthcare solutions rely on static algorithms and generalized datasets that fail to account for individual variability in healing trajectories. The wound healing process is highly patient-specific, influenced by a multitude of dynamic and interrelated factors, including the patient's age, comorbid conditions, medication regimen, immune response, and wound-specific characteristics. As a result, static and non-adaptive models are inadequate in providing personalized and clinically relevant insights, thereby limiting their effectiveness in real-world therapeutic settings.

A representative example of such prior art is detailed in the article “*Smart wound dressings for monitoring and treatment of chronic wounds*” (Frontiers in Bioengineering and Biotechnology, 2019; PMC6511580). This publication surveys emerging classes of smart wound dressings capable of sensing wound parameters and, in some cases, enabling drug release. While these systems mark a substantial advancement over conventional dressings, they are largely limited to sensor-based monitoring with minimal or no computational intelligence. The article underscores that although sensor-enabled dressings can detect deviations in parameters such as pH or temperature, the lack of intelligent interpretive frameworks especially those capable of learning from patient-specific wound trajectories limits their utility in predictive diagnostics and personalized care.

Consequently, while the cited publication represents a valuable contribution to the state of the art in wound monitoring technologies, it does not disclose a system that integrates adaptive machine learning algorithms capable of evolving with individual healing profiles over time.

Accordingly, there exists a compelling need for a wound monitoring system that combines continuous real-time data acquisition with adaptive AI-driven analytics. Such a system should be capable of learning from individual patient data, dynamically updating its predictive models based on observed healing patterns and delivering context-aware alerts and recommendations.

OBJECTIVE OF THE INVENTION

The objective of the present invention is to provide an Adaptive Artificial Intelligence (AI) Wound Healing Monitoring System comprising: a smart, flexible wound dressing fabricated from biocompatible, breathable material embedded with a multi-parametric sensor array configured to measure moisture content, temperature, pH level, oxygen saturation, and biochemical markers indicative of infection or inflammation having compact processing module configured to receive sensor data wirelessly from the sensor array, the module comprising a core AI engine with adaptive machine learning algorithms for real-time analysis of wound data and patient-specific factors to generate a personalized baseline healing profile;

Another objective of the invention is to integrate a cloud-based communication platform for securely transmitting processed information, including early warning alerts, healing rate predictions, and recommended interventions, to healthcare providers;

Yet another objective of the invention is to incorporate an intuitive mobile application and web-based dashboard for real-time access to patient-specific insights.

Yet Another objective of the invention is to include multi-parametric sensor array comprising moisture sensors for assessing exudate levels and hydration status, pH sensors for detecting acidity or alkalinity shifts indicative of infection, temperature sensors for identifying inflammation or systemic infection, oxygen saturation sensors for evaluating tissue perfusion and healing potential, biochemical sensors for monitoring pro-inflammatory cytokines, C-reactive protein, lactate levels, proteolytic enzymes, and bacterial metabolites and optional pressure sensors for detecting mechanical stress on the wound site.

Another objective of the invention is to provide a wound dressing which is configured to ensure patient comfort, air and moisture permeability, and durability for extended monitoring periods.

Another objective of the invention is to ensure that the core AI engine employs supervised and unsupervised learning frameworks, including recurrent

neural networks, long short-term memory models, and ensemble learning methods, to dynamically learn from patient-specific data.

Another objective of the invention is to provide an optional patient-reported outcome module integrated into the application layer for logging subjective symptoms to augment the AI engine's dataset.

One other objective of the invention is provide a processing module that operates with low-power wireless protocols and optimized data transmission strategies to maximize battery life.

Yet another objective of the invention is to provide an AI engine that forecasts wound healing trajectories by comparing real-time data with historical healing datasets and known complication profiles.

Another objective of the invention is to provide a cloud-based communication platform supports encrypted remote connectivity for access to wound data and alerts.

One other objective of the invention is incorporate a notification system which is customizable to deliver alerts based on clinically relevant thresholds.

One other objective is include biochemical markers such as pro-inflammatory cytokines, C-reactive protein, lactate levels, proteolytic enzymes, and bacterial metabolites for detecting infection or impaired healing.

SUMMARY OF THE INVENTION

An Adaptive Artificial Intelligence (AI) Wound Healing Monitoring System that enables continuous, intelligent, and individualized assessment of wounds through a smart, flexible wound dressing embedded with a multi-parametric sensor array for measuring critical wound parameters, including moisture content, temperature, pH level, oxygen saturation, and biochemical markers such as pro-inflammatory cytokines, C-reactive protein, lactate levels, proteolytic enzymes, and bacterial metabolites. The invention aims to utilize a compact processing module with a core AI engine employing adaptive machine learning algorithms, including recurrent neural networks, long short-term memory models, and ensemble learning methods, to analyze real-

time wound data and patient-specific factors, generating a personalized baseline healing profile that is continuously updated for refined predictive accuracy. The system seeks to forecast wound healing trajectories, provide early warning alerts, and recommend interventions, securely transmitting this information via a cloud-based platform to healthcare providers through an intuitive mobile application and web-based dashboard. Additionally, the invention aims to incorporate an optional patient-reported outcome module to log subjective symptoms, enhancing personalized modeling, while ensuring energy efficiency through low-power wireless protocols and supporting remote connectivity for outpatient care, telemedicine, and rural healthcare settings with a customizable notification system based on clinically relevant thresholds.

BRIEF DESCRIPTION OF DRAWINGS

1. **Smart Wound Dressing:** The smart wound dressing is a flexible, biocompatible patch applied directly to the wound. It acts as the first layer of the system, embedded with micro-sensors that continuously monitor various wound parameters without disturbing the healing process. It ensures patient comfort while enabling non-invasive and uninterrupted data collection.
2. **Data Collection:** The smart dressing gathers real-time data like moisture, temperature, pH, oxygen levels, and biomarkers from the wound site through the sensors.
3. **Multi-Parametric Sensor Array:** Located within the smart dressing, the multi-parametric sensor array captures a wide range of critical wound metrics:
 - Moisture sensors detect excessive dryness or fluid buildup.
 - Temperature sensors identify localized inflammation or infection.
 - pH sensors monitor the wound environment's acidity or alkalinity, critical for infection detection.
 - Oxygenation sensors measure tissue oxygen levels, essential for wound healing.

- Biomarker sensors detect specific biological molecules linked to infection, inflammation, or healing progress.

This rich set of data provides a real-time, multi-dimensional view of the wound's condition.

4. **Adaptive AI Wound Healing Monitoring System:** The central platform that receives, organizes, and manages data coming from the wound dressing, preparing it for advanced analysis.
5. **Preprocessing and Analysis:** Initial cleaning and standardization of the raw sensor data to remove noise, correct anomalies, and structure it for AI processing.
6. **AI Engine:** The AI engine is the computational core that processes incoming sensor data. It uses machine learning models to:

- Analyze patterns
- Identify deviations from normal healing
- Predict future wound healing outcomes
- Detect early signs of complications like infection or delayed healing

The engine adapts over time by learning from patient-specific data.

7. **Generate Insights:** The AI engine outputs actionable information like healing rates, early warnings for infection, or treatment adjustment suggestions.
8. **Proactive Intervention:** Based on the insights, healthcare providers (or automated systems) can adjust treatments earlier, preventing complications and accelerating healing.
9. **Cloud-Based Platform:** Ensures all the sensor data and AI analysis are securely stored and transmitted. Enables remote monitoring and access to information anytime.
10. **Secure Data Transmission:** Protects patient data during transfer between the smart dressing, cloud storage, and user devices using encryption and cybersecurity protocols.
11. **User Interfaces (Mobile App and Web Dashboard):** Presents the analyzed wound healing information in a user-friendly format to doctors, nurses, and patients, enabling easy monitoring, alerts, and

decision-making. Healthcare providers and patients interact with the system through mobile apps and web dashboards. These interfaces offer:

- Real-time wound status updates
- Predictive alerts
- Healing progress charts

Personalized recommendations They make wound management proactive and easily accessible

DETAILED DESCRIPTION OF INVENTION

The present invention relates to an Adaptive Artificial Intelligence (AI) Wound Healing Monitoring System, and more specifically to a system that provides continuous, intelligent and individualized assessment of wounds by integrating smart sensor technologies with adaptive AI algorithms for real-time monitoring, data analysis, and predictive guidance in wound care.

In accordance with one embodiment of the invention, the system comprises a smart, flexible wound dressing embedded with an array of micro-sensors configured to measure critical wound parameters. The dressing used in this invention is a smart, flexible wound dressing fabricated from biocompatible, breathable material designed to ensure patient comfort while supporting continuous and accurate data collection. It is embedded with a multi-parametric sensor array capable of capturing various biophysical and biochemical wound metrics. The dressing's material is selected to allow air and moisture permeability, thus preserving an optimal wound environment while also being skin-friendly for long-term use. This smart dressing houses micro-sensors that wirelessly communicate with an AI-based processing unit, either integrated within the dressing or externally attached. The structural and material choice ensures durability, comfort, and effectiveness during extended monitoring periods. The wound dressing is fabricated from a biocompatible, breathable material adapted to maintain patient comfort while enabling accurate and continuous data acquisition. The sensor array is configured to measure moisture content, temperature, pH level, oxygen saturation, and biochemical markers indicative of infection or inflammation.

These biochemical markers may include those commonly associated with wound complications and impaired healing processes. The biochemical markers monitored by the system include those commonly associated with infection, inflammation, and impaired wound healing. These may include pro-inflammatory cytokines, C-reactive protein (CRP), lactate levels, proteolytic enzymes (such as matrix metalloproteinases), and bacterial metabolites. Such markers are essential indicators of wound complications and help detect early signs of infection or non-healing status. By tracking these biochemical signatures in real time, the system can provide precise, actionable insights to healthcare professionals for timely intervention, thereby avoiding clinical complications.

The collected sensor data is transmitted wirelessly to a compact processing module, which may be embedded within the dressing or externally attached.

The invention integrates an advanced multi-parametric sensor array, which includes:

- Moisture sensors – for assessing exudate levels and hydration status of the wound;
- pH sensors – to detect acidity or alkalinity shifts indicative of infection;
- Temperature sensors – for identifying inflammation or systemic infection;
- Oxygen saturation sensors – to evaluate tissue perfusion and healing potential;
- Biochemical sensors – to monitor specific markers of infection, inflammation, and enzymatic activity;
- Pressure sensors (optional) – if implemented, to detect mechanical stress on the wound site.

These sensors work in concert to offer a comprehensive picture of wound conditions, all while embedded in the dressing to enable continuous, non-invasive monitoring.

The processing unit includes a core artificial intelligence engine comprising machine learning algorithms capable of dynamic and adaptive learning. The AI engine is configured to initially analyze the real-time wound data in

conjunction with patient-specific factors, including but not limited to medical history, medication regimen, comorbidities, and environmental conditions. Based on this analysis, the system generates a personalized baseline healing profile.

As the wound healing process advances, the system continues to collect real-time data and update its predictive models. The system utilizes a core AI engine embedded in a compact processing module, which employs adaptive machine learning algorithms rather than static models. These include supervised and unsupervised learning frameworks tailored for medical time-series data, potentially involving recurrent neural networks (RNNs), long short-term memory (LSTM) models, and ensemble learning methods. These models dynamically learn from patient-specific data to adapt predictions over time. The AI engine continuously evolves as more data is collected, personalizing the healing trajectory for each user. There is also an optional Patient-Reported Outcome (PRO) module integrated into the application layer to further augment data for personalized modelling. The AI engine dynamically evolves by learning from newly acquired data and patient responses, enabling the generation of individualized healing trajectories and forecasted outcomes. This adaptive behaviour distinguishes the invention from conventional monitoring systems that rely on static or generalized wound models.

The processed information comprising early warning alerts, healing rate predictions, and recommended interventions is transmitted securely to healthcare providers through a cloud-based communication platform. An intuitive mobile application and web-based dashboard are provided to facilitate real-time access to patient-specific insights, supporting timely clinical decision-making. The notification system is customisable, allowing healthcare professionals and caregivers to receive alerts based on clinically relevant thresholds without being burdened by non-critical data updates.

The system is designed to operate with energy efficiency, incorporating low-power wireless protocols and optimised data transmission strategies, thereby

maximising battery life and enabling extended monitoring durations without frequent recharging or battery replacement.

The invention further includes predictive analytics to forecast the likely trajectory of wound healing. By comparing real-time data with historical healing datasets and known complication profiles, the system is capable of predicting potential adverse outcomes, thereby allowing clinicians to make proactive adjustments to treatment strategies.

In one embodiment, the system optionally includes a patient-reported outcome (PRO) module, which allows patients to log subjective symptoms such as pain intensity, discomfort, or other relevant health indicators. These inputs are used to augment the AI engine's dataset, providing a more comprehensive and holistic wound assessment. This invention measures a broad range of critical parameters essential to wound monitoring, including:

- Moisture content – for assessing exudate levels and maintaining proper hydration balance;
- Temperature – as a proxy for inflammation and infection detection;
- pH level – to evaluate microbial activity and wound alkalinity;
- Oxygen saturation – for tissue viability and perfusion analysis;
- Biochemical markers – such as inflammatory cytokines, lactate, and proteases, indicating infection or impaired healing;
- Patient-reported symptoms – like pain, discomfort, or itching, to provide subjective clinical insight;
- Healing rate trends – calculated from data over time to predict wound progression.

These parameters are not only monitored but analyzed in real time to forecast healing outcomes and generate alerts or recommendations for clinical action.

The novel features of the invention include the integration of a multi-parametric sensor array within a flexible wound dressing, the use of adaptive machine learning algorithms that evolve over time, and the ability to provide real-time, patient-specific, predictive insights. The system not only reports

current wound conditions but also forecasts future healing outcomes, thereby enabling early and personalised interventions.

Furthermore, the system offers remote connectivity through encrypted cloud-enabled modules, enabling clinicians to access wound data and alerts irrespective of geographic location. This aspect of the invention is particularly useful in outpatient care, telemedicine environments, and rural healthcare settings, where in-person consultations may not be feasible on a regular basis.

The Adaptive AI Wound Healing Monitoring System introduces an advanced, patient-centric approach to wound care by combining continuous multi-parameter sensing, adaptive AI-based modelling, and predictive analytics. The invention transforms wound management from periodic, subjective assessments into continuous, data-driven, and individualised care, with the potential to significantly reduce healing times, prevent complications, lower healthcare costs, and improve patient outcomes across various settings, including hospitals, clinics, and home healthcare environments.

We claim:

1. An Adaptive Artificial Intelligence (AI) Wound Healing Monitoring System comprising:
 - a. a smart, flexible wound dressing fabricated from biocompatible, breathable material embedded with a multi-parametric sensor array configured to measure moisture content, temperature, pH level, oxygen saturation, and biochemical markers indicative of infection or inflammation;
 - b. a compact processing module configured to receive sensor data wirelessly from the sensor array, the module comprising a core AI engine with adaptive machine learning algorithms for real-time analysis of wound data and patient-specific factors to generate a personalized baseline healing profile;
 - c. a cloud-based communication platform for securely transmitting processed information, including early warning alerts, healing rate predictions, and recommended interventions, to healthcare providers;
 - d. an intuitive mobile application and web-based dashboard for real-time access to patient-specific insights.
2. The AI wound healing monitoring system as claimed in claim 1, wherein the multi-parametric sensor array includes:
 - a. moisture sensors for assessing exudate levels and hydration status;
 - b. pH sensors for detecting acidity or alkalinity shifts indicative of infection;
 - c. temperature sensors for identifying inflammation or systemic infection;
 - d. oxygen saturation sensors for evaluating tissue perfusion and healing potential;
 - e. biochemical sensors for monitoring pro-inflammatory cytokines, C-reactive protein, lactate levels, proteolytic enzymes, and bacterial metabolites;
 - f. optional pressure sensors for detecting mechanical stress on the wound site.

3. The AI wound healing monitoring system as claimed in claim 1, wherein the wound dressing is configured to ensure patient comfort, air and moisture permeability, and durability for extended monitoring periods.
4. The AI wound healing monitoring system as claimed in claim 1, wherein the core AI engine employs supervised and unsupervised learning frameworks, including recurrent neural networks, long short-term memory models, and ensemble learning methods, to dynamically learn from patient-specific data.
5. The AI wound healing monitoring system as claimed in claim 1, having an optional patient-reported outcome module integrated into the application layer for logging subjective symptoms to augment the AI engine's dataset.
6. The AI wound healing monitoring system as claimed in claim 1, wherein the processing module operates with low-power wireless protocols and optimized data transmission strategies to maximize battery life.
7. The AI wound healing monitoring system as claimed in claim 1, wherein the AI engine forecasts wound healing trajectories by comparing real-time data with historical healing datasets and known complication profiles.
8. The AI wound healing monitoring system as claimed in claim 1, wherein the cloud-based communication platform supports encrypted remote connectivity for access to wound data and alerts.
9. The AI wound healing monitoring system as claimed in claim 1, wherein the notification system is customizable to deliver alerts based on clinically relevant thresholds.

10. The AI wound healing monitoring system as claimed in claim 1, wherein the biochemical markers monitored include pro-inflammatory cytokines, C-reactive protein, lactate levels, proteolytic enzymes, and bacterial metabolites for detecting infection or impaired healing.

Dated this 3rd day of August 2025



Sudarshana Bandyopadhyay

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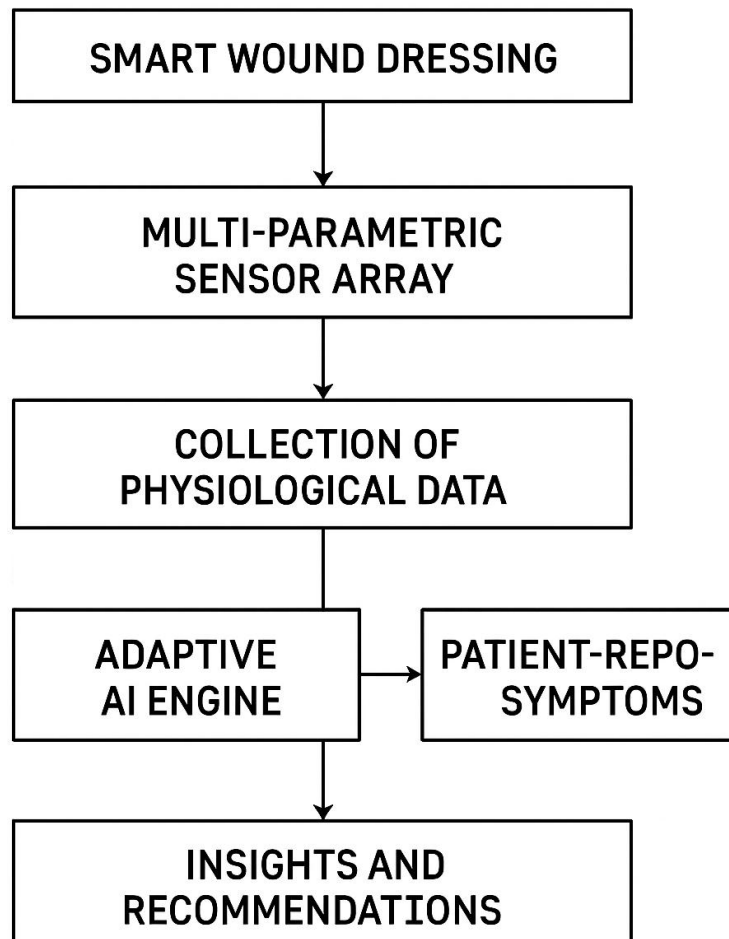
ABSTRACT

ADAPTIVE AI WOUND HEALING MONITORING SYSTEM

The present invention pertains to an Adaptive Artificial Intelligence (AI) Wound Healing Monitoring System comprising: a smart, flexible wound dressing fabricated from biocompatible, breathable material embedded with a multi-parametric sensor array configured to measure moisture content, temperature, pH level, oxygen saturation, and biochemical markers indicative of infection or inflammation integrated with a compact processing module configured to receive sensor data wirelessly from the sensor array, the module comprising a core AI engine with adaptive machine learning algorithms for real-time analysis of wound data and patient-specific factors to generate a personalized baseline healing profile, a cloud-based communication platform for securely transmitting processed information, including early warning alerts, healing rate predictions and recommended interventions, to healthcare providers and an intuitive mobile application and web-based dashboard for real-time access to patient-specific insights.

Appl No. -

Sheet 1 of 2



Detailed Flowchart

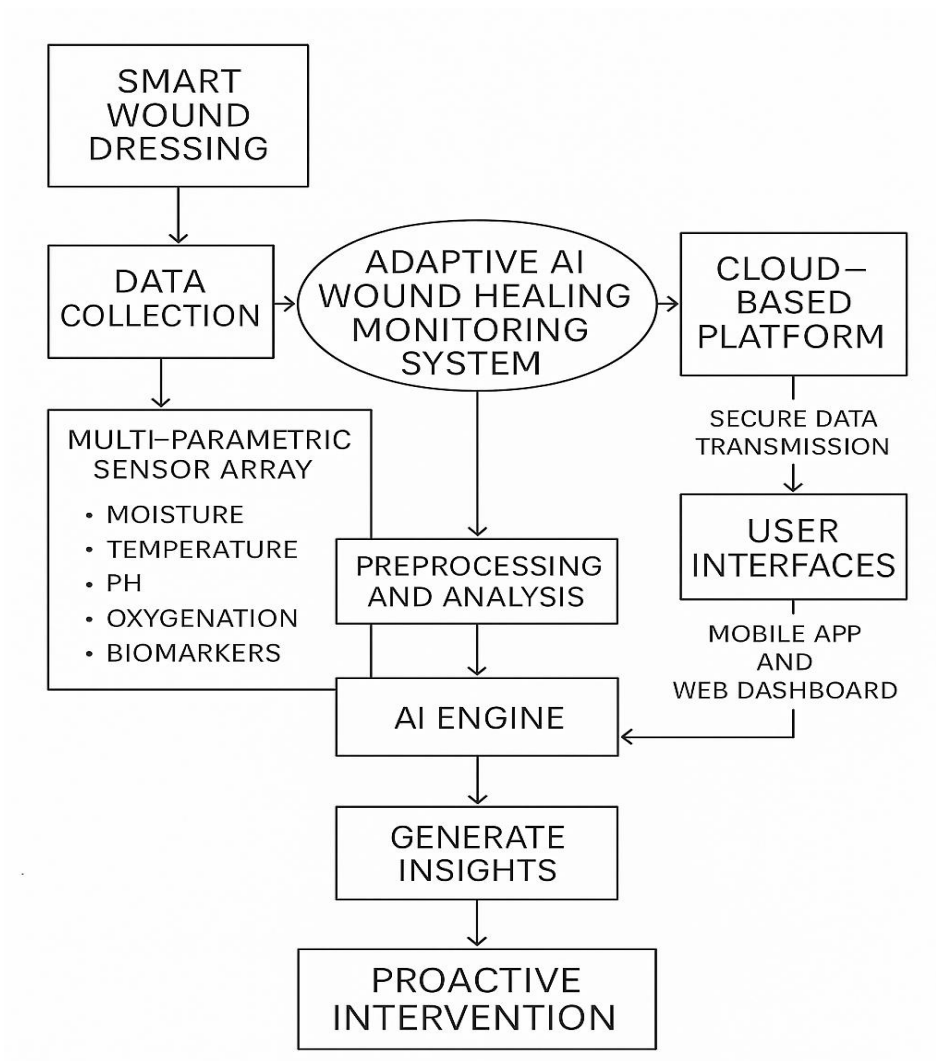
Figure 1

Sudarshana

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Appl No. -

Figure 2 of 2



Core component

Figure 2

Sudarshana

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FORM 5
THE PATENTS ACT, 1970
(39 of 1970)
&
THE PATENTS RULES, 2003

Declaration as to Inventorship
[See section 10(6) and rule 13(6)]

1. NAME OF APPLICANT: SRJX RESEARCH AND INNOVATION LAB LLP,

hereby declare that the true and first inventor(s) of the invention disclosed in the complete specification filed in pursuance of our application numbered _____ dated _____ are:

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b) c) Address: Plot No - 3E/474, Sector-9, CDA, Post- Markat Nagar, Cuttack-753014, Odisha, India

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Dated this 23rd day of July 2025



Name of the signatory:

Signature Not Verified

Digitally Signed.
Name: Sudarshana
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Date: 03-Aug-2025 22:50:09
Reason: Patent Filing

Dated this 3rd day of August 2025

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To,
The Controller of Patents,
The Patent Office
At Kolkata

CERTIFICATE NO:
DIPP203406



सत्यमेव जयते
Government of India
Ministry of Commerce & Industry
Department for Promotion of Industry and Internal Trade

#startupindia

CERTIFICATE OF RECOGNITION

This is to certify that **SRJX RESEARCH AND INNOVATION LAB LLP** incorporated as a **Limited Liability Partnership** on **05-05-2025**, is recognized as a startup by the Department for Promotion of Industry and Internal Trade. The startup is working in 'Professional & Commercial Services' Industry and 'Professional Information Services' sector as self-certified by them.

This certificate shall only be valid for the Entity up to **Ten** years from the date of its incorporation only if its turnover for any of the financial years has not extended ₹ **100 Cr.**

14-05-2025

DATE OF ISSUE



04-05-2035

VALID UPTO

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Digitally Signed:
Name: Sudarshan
Bandyopadhyay
Date: 03-Aug-2025 22:54:03
Reason: Patent Filing

"FORM 1 THE PATENTS ACT 1970 (39 of 1970) and THE PATENTS RULES, 2003 APPLICATION FOR GRANT OF PATENT (See section 7, 54 and 135 and sub-rule (1) of rule 20)				(FOR OFFICE USE ONLY)	
				Application No.	
				Filing date:	
				Amount of Fee paid:	
				CBR No:	
				Signature:	
1. APPLICANT'S REFERENCE / IDENTIFICATION NO. (AS ALLOTTED BY OFFICE)					
2. TYPE OF APPLICATION [Please tick (✓) at the appropriate category]					
Ordinary (✓)		Convention ()		PCT-NP ()	
Divisional ()	Patent of Addition ()	Divisional ()	Patent of Addition ()	Divisional ()	Patent of Addition ()
3A. APPLICANT(S)					
Name in Full		Nationality	Country of Residence	Address of the Applicant	
SRJX RESEARCH AND INNOVATION LAB LLP		Indian	India	SRJX RESEARCH AND INNOVATION LAB LLP, Plot No - 3E/474, Sector-9, CDA, Post- Markat Nagar, Cuttack- 753014, Odisha, India	
3B. CATEGORY OF APPLICANT [Please tick (✓) at the appropriate category]					
Natural Person ()		Other than Natural Person			
		Small Entity ()	Startup (✓)	Others ()	
4. INVENTOR(S) [Please tick (✓) at the appropriate category]					
Are all the inventor(s) same as the applicant(s) named above?		Yes ()		No (✓)	

If “No”, furnish the details of the inventor(s)					
Name in Full		Nationality	Country of Residence	Address of the Inventor	
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MR SANJOY SAHA		Indian	India	63/1, Thakur Para Road, P.O.- Naihati, North 24 Parganas, West Bengal-743165, India	
5. TITLE OF THE INVENTION					
ADAPTIVE AI WOUND HEALING MONITORING SYSTEM					
6. AUTHORISED REGISTERED PATENT AGENT(S)			IN/PA No.	2802	
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			Fax No.	NA	
			E-mail ID	bandyopadhyay.sudarshana@gmail.com	
8. IN CASE OF APPLICATION CLAIMING PRIORITY OF APPLICATION FILED IN CONVENTION COUNTRY, PARTICULARS OF CONVENTION APPLICATION					
Country	Application Number	Filing date	Name of the applicant	Title of the invention	IPC (as classified in the convention country)
N.A.					

9. IN CASE OF PCT NATIONAL PHASE APPLICATION, PARTICULARS OF INTERNATIONAL APPLICATION FILED UNDER PATENT CO-OPERATION TREATY (PCT)	
International application number	International filing date
10. IN CASE OF DIVISIONAL APPLICATION FILED UNDER SECTION 16, PARTICULARS OF ORIGINAL (FIRST) APPLICATION	
Original (first) application No.	Date of filing of original (first) application
N.A.	
11. IN CASE OF PATENT OF ADDITION FILED UNDER SECTION 54, PARTICULARS OF MAIN	
Main application/patent No.	Date of filing of main application
N.A.	N.A.
12. DECLARATIONS	
(i) Declaration by the inventor(s) (In case the applicant is an assignee: the inventor(s) may sign herein below or the applicant may upload the assignment or enclose the assignment with this application for patent or send the assignment by post/electronic transmission duly authenticated within the prescribed period). We, the above-named inventor(s) is/are the true & first inventor(s) for this Invention and declare that the applicant(s) herein is/are my/our assignee or legal representative. (a) Date: (b) Signature: (c) Name: Mr Soumya Ranjan Jena (a) Date (b) Signature(s): (c) Name: Mr Sanjoy Saha	

(ii) Declaration by the applicant(s) in the convention country

(In case the applicant in India is different than the applicant in the convention country: the applicant in the convention country may sign herein below or applicant in India may upload the assignment from the applicant in the convention country or enclose the said assignment with this application for patent or send the assignment by post/electronic transmission duly authenticated within the prescribed period)

I/We, the applicant(s) in the convention country declare that the applicant(s) herein is/are my/our assignee or legal representative. – **N.A.**

- (a) Date
- (b) Signature(s)
- (c) Name(s) of the signatory

(iii) Declaration by the applicant

We the applicant hereby declare that: -

- ☒ We are in possession of the above-mentioned invention.
- ☒ The complete specification relating to the invention is filed with this application.
- ☐ The invention as disclosed in the specification uses the biological material from India and the necessary permission from the competent authority shall be submitted by me/us before the grant of patent to me/us.
- ☒ There is no lawful ground of objection(s) to the grant of the Patent to us.
- ☐ We are the true & first inventor(s).
- ☒ We are the assignee or legal representative of true & first inventor(s).
- ☐ The application or each of the applications, particulars of which are given in Paragraph-8, was the first application in convention country in respect of my invention(s).
- ☐ We claim the priority from the above mentioned application(s) filed in convention country/countries and state that no application for protection in respect of the invention had been made in a convention country before that date by us or by any person from which I derive the title.
- ☐ Our application in India is based on international application under Patent Cooperation Treaty (PCT) as mentioned in Paragraph-9.
- ☐ The application is divided out of my /our application particulars of which is given in Paragraph-10 and pray that this application may be treated as deemed to have been filed on DD/MM/YYYY under section 16 of the Act.
- ☐ The said invention is an improvement in or modification of the invention particulars of which are given in Paragraph-11.

13. FOLLOWING ARE THE ATTACHMENTS WITH THE APPLICATION

(a) Form 2

<i>Item</i>	<i>Details</i>	<i>Fee</i>	<i>Remarks</i>
Complete/ provisional specification	No. of pages: 12	1600	Including Form 2, description,
No. of Claim(s)	No. of Claims = 10 No. of Pages = 3	-	Claim pages
Abstract	1		Abstract page
No. of Drawing(s)	No. of drawings = 2 and No. of pages = 2		Drawing sheets

In case of a complete specification, if the applicant desires to adopt the drawings filed with his provisional specification as the drawings or part of the drawings for the complete specification under rule 13(4), the number of such pages filed with the provisional specification are required to be mentioned here.

- b. Form 3: Statement and Undertaking
- c. Form 5: Declaration as to inventorship
- d. Power of Attorney
- e. Form 28
- f. Form 9

Total fee ₹ 4100/- is being paid online through electronic portal

We hereby declare that to the best of our knowledge, information and belief the fact and matters stated herein are correct and we request that a patent may be granted to us for the said invention.

Dated this day 3rd of August 2025.

Signature:



Name: Sudarshana Bandyopadhyay

(Regn No: IN/PA 2802)

Agent for the Applicant

Phn no.: 97488 18235

email: bandyopadhyay.sudarshana@gmail.com

To,
The Controller of Patents
The Patent Office,
at Kolkata

FORM 28 THE PATENTS ACT, 1970 (39 of 1970) AND THE PATENTS RULES, 2003 TO BE SUBMITTED BY A SMALL ENTITY /STARTUP/EDUCATIONAL INSTITUTION [See rules 2 (fa), 2(fb), 2(ca) and 7]		
1	Name, address and nationality.	We, SRJX RESEARCH AND INNOVATION LAB LLP, of the address Plot No - 3E/474, Sector-9, CDA, Post- Markat Nagar, Cuttack-753014, Odisha, India, applicant in respect of the patent application no. _____ dated 3 August 2025 hereby declare that we are a small entity in accordance with rule 2(fa) and submit the following document as a proof :
2	Documents to be submitted	
	i. For claiming the status of a small entity:	
	A. For an Indian applicant: Evidence of registration under the Micro, Small and Medium Enterprises Act, 2006 (27 of 2006).	
3	To be signed by the applicant(s) / patentee (s) / authorised registered patent agent.	The information provided herein is correct to the best of my/our knowledge and belief. Dated this 3rd day of August 2025
4	Name of the natural person who has signed.	 Signature:

Signature Not Verified

Digitally Signed.
 Name: Sudarshana
 Bandyopadhyay
 Date: 03-Aug-2025 22:51:03
 Reason: Patent Filing

	Designation and official seal, if any, of the person who has signed.	Sudarshana Bandyopadhyay Regn. No.: IN/PA 2802 Agent for the applicant Phn No. 9748818235 Email: bandyopadhyay.sudarshana@gmail.com To The Controller of Patents, The Patent Office, At Kolkata
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FORM 9
THE PATENTS ACT, 1970
(39 of 1970)
&
THE PATENTS RULES, 2003
REQUEST FOR PUBLICATION
[See Section 11A(2); Rule 24A]

We, SRJX RESEARCH AND INNOVATION LAB LLP, of the address Plot No - 3E/474, Sector-9, CDA, Post- Markat Nagar, Cuttack-753014, Odisha, India, hereby request for an early publication of our Patent Application No. _____ filed on 3 August 2025 under Section 11A(2) of the Act.

Dated this 3rd day of August 2025



Sudarshana Bandyopadhyay
Regn No.: IN/PA 2802
Agent for the Applicants
Email: bandyopadhyay.sudarshana@gmail.com
Phn No: 9748818235

Signature Not Verified

Digitally Signed.
Name: Sudarshana
Bandyopadhyay
Date: 03-Aug-2025 22:52:56
Reason: Patent Filing

FORM 3 THE PATENTS ACT, 1970 (39 of 1970) and THE PATENTS RULES, 2003 STATEMENT AND UNDERTAKING UNDER SECTION 8 (See section 8; Rule 12)					
1. Name of the applicant(s).			We, SRJX RESEARCH AND INNOVATION LAB LLP, Plot No - 3E/474, Sector-9, CDA, Post-Markat Nagar, Cuttack-753014, Odisha, India hereby declare:		
2. Name, address and nationality of the joint applicant.			(i) that we have not made any application for the same/substantially the same invention outside India Or (ii) that we who have made this application No date _____ alone/ jointly with, made for the same/ substantially same invention, application(s) for patent in the other countries, the particulars of which are given below:		
Name of the country	Date of application	Application No.	Status of the application	Date of publication	Date of grant
N.A.					
3. Name and address of the assignee			(iii) that the rights in the application(s) have been assigned to SRJX RESEARCH AND INNOVATION LAB LLP, Plot No - 3E/474, Sector-9, CDA, Post-Markat Nagar, Cuttack-753014, Odisha, India		

Signature Not Verified

Digitally Signed.
 Name: Sudarshana Bandyopadhyay
 Date: 03-Aug-2025 22:50:09
 Reason: Patent Filing

	that we undertake that upto the date of grant of the patent by the Controller, we would keep him informed in writing the details regarding corresponding applications for patents filed outside India within six months from the date of filing of such application. Dated this 3rd day of August 2025
4. To be signed by the applicant or his authorized registered patent agent.	 Signature.
5. Name of the natural person who has signed.	Sudarshana Bandyopadhyay Regn. No.: IN/PA 2802 Agent for the applicant Phn No. 9748818235 Email: bandyopadhyay.sudarshana@gmail.com
	To The Controller of Patents, The Patent Office, at Kolkata
Note.- Strike out whichever is not applicable;	



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INDIA NON JUDICIAL

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Signature Not Verified

Digitally Signed
 Name: Sudarshan
 Bandyopadhyay
 Date: 20-Aug-2025 23:12:25
 Reason: Patent Pending

SRJX RESEARCH AND INNOVATION LAB LLP SRJX RESEARCH AND INNOVATION LAB LLP SRJX RESEARCH AND INNOVATION LAB LLP SRJX RESEARCH AND INNOVATION LAB LLP

FORM-26
The Patents Act, 1970
(39 of 1970)
FORM FOR AUTHORIZATION OF A PATENT AGENT/OR ANY PERSON IN A
MATTER OR PROCEEDING UNDER THE ACT
[See Sections 127 and 132; Rule 135]

I, **SRJX RESEARCH AND INNOVATION LAB LLP**, Indian, of the address **SRJX RESEARCH AND INNOVATION LAB LLP, Plot No - 3E/474, Sector-9, CDA, Post- Markat Nagar, Cuttack-753014, Odisha, India**, hereby authorize **Zainab Syed & Associates** having address **3E, Nawab Bhagwanpora, Lal Bazar, Srinagar, Jammu & Kashmir, 190023, India** (**Mobile No.: +91 9748818235, Email: bandyopadhyay.sudarshana@gmail.com**) through **Ms. Sudarshana Bandyopadhyay (IN/PA 2802)** and **Ms. Meenu Sharma (IN/PA-2856)**, registered Indian Patent Agents, to act on our behalf and to further appoint attorney(s)/agent(s) in connection with the filing and prosecution of our patent applications for grant of Letters Patent, filing of request for examination, filing request for amendment, recordal of change of name and address, ownership, change of address of service in India, renewal of patent, recordal of assignments, filing and defending oppositions and infringement actions, restoration of patents, registration of documents and such other actions and all proceedings under the Patents Act, 1970 and the Patent Rules, 2003 and all such proceedings before the Patent Office or the Government of India or any Court in India and all acts and things as the said attorney may deem necessary or expedient in connection therewith or incidental thereto.

We further request that all notices, requisitions and communication relating thereto may be sent to such person/s at the corresponding address mentioned below:

Ground Floor, S-456, LGF, Greater Kailash – II, New Delhi – 110048, India,

(Contact No.: +91 9748818235; Email: bandyopadhyay.sudarshana@gmail.com)

We, hereby, revoke all previous authorizations, if any, in respect of the proceedings.



We, hereby, assent to the action already taken by the said person/s in the above matter.

Dated this 14th day of August, 2025

SRJX RESEARCH AND INNOVATION LAB LLP

Through:

Signature: *Soumya Ranjan Jena*

Name: Dr. Soumya Ranjan Jena

Company
Seal:

SRJX Research and Innovation Lab LLP
LLPIN: ACO-1435

To,
The Controller of Patents,
The Patent Office,
Kolkata



ATTESTED

Notary Public Delhi

16 AUG 2025