

पेटेंट कार्यालय  
शासकीय जर्नल

**OFFICIAL JOURNAL  
OF  
THE PATENT OFFICE**

---

---

निर्गमन सं. 23/2025  
ISSUE NO. 23/2025

शुक्रवार  
FRIDAY

दिनांक: 06/06/2025  
DATE: 06/06/2025

---

---

पेटेंट कार्यालय का एक प्रकाशन  
PUBLICATION OF THE PATENT OFFICE

## **INTRODUCTION**

In view of the recent amendment made in the Patents Act, 1970 by the Patents (Amendment) Act, 2005 effective from 01<sup>st</sup> January 2005, the Official Journal of The Patent Office is required to be published under the Statute. This Journal is being published on weekly basis on every Friday covering the various proceedings on Patents as required according to the provision of Section 145 of the Patents Act 1970. All the enquiries on this Official Journal and other information as required by the public should be addressed to the Controller General of Patents, Designs & Trade Marks. Suggestions and comments are requested from all quarters so that the content can be enriched.

**( PROF. (DR) UNNAT P. PANDIT )  
CONTROLLER GENERAL OF PATENTS, DESIGNS & TRADE MARKS**

**06<sup>th</sup> June, 2025**

(54) Title of the invention : Advanced Biomechanical Exoskeleton for Sports and Industrial Rehabilitation Applications

(51) International classification :A61B0005000000, A61B0005389000, A61B0005110000, A61H0003000000, A61H0001020000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

**(71)Name of Applicant :**  
**1)Dr.S.Sandhya**  
 Address of Applicant :Assistant Professor, Department of Information Technology, SRM Valliammai Engineering College, SRM Nagar, Kattankulathur, Chennai, Tamilnadu, PIN Code: 603203 -----  
**2)Ms.S.Kiruthika**  
**3)Dr.Jitender Thakur**  
**4)Karthiga.R**  
**5)Dr.Vikrant Bhardwaj**  
**6)Komali Lenka**  
**7)Dr. Reenu**  
**8)Ms. S.M.Nithya Devi**  
**9)D.Padmapriya**  
**10)Doraboyina Prabhu Kumar**  
**11)Dr. Hina Hashmi**  
**12)Nalini Santosh Jagtap**  
**Name of Applicant : NA**  
**Address of Applicant : NA**

**(72)Name of Inventor :**  
**1)Dr.S.Sandhya**  
 Address of Applicant :Assistant Professor, Department of Information Technology, SRM Valliammai Engineering College, SRM Nagar, Kattankulathur, Chennai, Tamilnadu, PIN Code: 603203 -----  
**2)Ms.S.Kiruthika**  
 Address of Applicant :Assistant Professor, Department of Information Technology, SRM Valliammai Engineering College, SRM Nagar, Kattankulathur, Chennai, Tamilnadu, PIN Code: 603203 -----  
**3)Dr.Jitender Thakur**  
 Address of Applicant :Assistant professor in Physical Education Physical Education Rajkiya Kanya Mahavidyalaya (RKMV) Shimla, Himanchal Pradesh -----  
**4)Karthiga.R**  
 Address of Applicant :Assistant Professor Computer Science and Engineering St. Joseph's Institute of Technology, Chennai, Tamilnadu. -----  
**5)Dr.Vikrant Bhardwaj**  
 Address of Applicant :Coach/Assistant Professor Directorate of Physical Education & youth program Himachal Pradesh University Shimla, Shimla, Himanchal Pradesh -----  
**6)Komali Lenka**  
 Address of Applicant :Assistant Professor Information Technology SRKR Engineering College, Chinnamiram, Bhimavaram, Chinamiram Rural, Andhra Pradesh -----  
**7)Dr. Reenu**  
 Address of Applicant :Assistant Professor Computer Science and Engineering K. R. Mangalam University, Gurugram,122103 Haryana Gurgaon, Haryana -----  
**8)Ms. S.M.Nithya Devi**  
 Address of Applicant :Assistant Professor Department of Electrical and Electronics Engineering Karpaga Vinayaga College of Engineering and Technology Madhuranthagam(T.k), Chengalpattu, Tamil Nadu. -----  
**9)D.Padmapriya**  
 Address of Applicant :Assistant professor Information technology Erode Sengunthar Engineering College Erode, Tamil Nadu -----  
**10)Doraboyina Prabhu Kumar**  
 Address of Applicant :Assistant Professor Artificial Intelligence and Data Science Mother Theresa Institute of Engineering and Technology Chittoor, Andhra Pradesh -----  
**11)Dr. Hina Hashmi**  
 Address of Applicant :Assistant Professor Computer Applications Teerthanker Mahaveer University Moradabad, Uttar Pradesh -----  
**12)Nalini Santosh Jagtap**  
 Address of Applicant :Associate Professor Computer Engineering Dr D Y Patil Institute of Engineering Management and Research, D Y Patil International University, Pune, Maharashtra -----

(57) Abstract :  
 Abstract We present an AI-enabled biomechanical exoskeleton system that is intended to meet the rehabilitative needs for individuals engaged in sports therapy and the ergonomic needs of individuals in an industrial work context. This novel invention gathers a comprehensive amount of biomechanical and physiological data in real time through various sensors, including EMG (electromyography), IMU (Inertial Measurement Unit), and pressure sensors. The data gathered informs the exoskeleton's adaptive mechanical support through accurately controlled actuators at primary human joints, including the knee, hip, and elbow. Fig.2 The exoskeleton leverages intelligent movement correction algorithms with machine learning to distinguish when the wearer's movement strays from the normative movement pathways, along with identifying mechanisms of fatigue or improper posture, and provides continuous corrective feedback. This functionality enhances user safety, supports recovery by supporting the user's muscle movement and activity, and limits chances for injury during prolonged periods or intense physical activities that may occur during repetitive tasks. To facilitate user comfort and usability, the exoskeleton provides a lightweight, modular format to easily be tailored through its advanced material components and customized for specific use cases. The user interface, operating system, cloud, and mobile-compatible platforms allow for continuous monitoring remotely, data analytic functions at an aggregate level, as well as feedback mechanisms. This complete system is designed to give not only a wider body of information for healthcare providers and industry collaborators for refining treatment or ergonomic work plans but ultimately improving user recovery and workplace safety.

No. of Pages : 20 No. of Claims : 1