पेटेंट कार्यालय
शासकीय जर्नल

OFFICIAL JOURNAL
OF
THE PATENT OFFICE

निर्गमन सं. 42/2024	शुक्रवार	दिनांक: 18/10/2024
ISSUE NO. 42/2024	FRIDAY	DATE: 18/10/2024

पेटेंट कार्यालय का एक प्रकाशन
PUBLICATION OF THE PATENT OFFICE

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :06/10/2024

(21) Application No.202441075579 A
(43) Publication Date : 18/10/2024

(54) Title of the invention : Method and system for Adaptive Climate Regulation in the Cool Wave Jacket Using Smart Sensor Integration and Wireless Control

(51) International classification :A41D0013005000, F24F0011523000, H05B0047105000, G05D0023190000, F24F0011620000
(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

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(57) Abstract :
METHOD AND SYSTEM FOR ADAPTIVE CLIMATE REGULATION IN THE COOL WAVE JACKET USING SMART SENSOR INTEGRATION AND WIRELESS CONTROL ABSTRACT The invention relates to the Cool Wave Jacket, a wearable technology designed for adaptive climate regulation using smart sensor integration and wireless control. The system includes an ESP-32 microcontroller, an infrared (IR) sensor for detecting ambient temperature and user motion, and a temperature control module for heating or cooling based on real-time data. A smartphone application enables users to customize climate preferences, providing wireless communication with the jacket. The system automatically adjusts the internal temperature to ensure user comfort during various activities and environmental conditions. A control algorithm processes sensor data and user input to optimize climate regulation dynamically. The jacket also features energy-efficient operation, entering a low-power mode during inactivity. This wearable solution is ideal for outdoor workers, athletes, and travelers, offering a balance of style, durability, and functional comfort across diverse environments. The invention enhances user experience through intelligent, hands-free climate control.

No. of Pages : 17 No. of Claims : 10