# Revolutionary Health Monitoring: IoT-Enabled Wearable Solar-Powered Jacket for Vital Sign Tracking, Remote Management, and Transformative Healthcare

A PROJECT WORK PHASE – I REPORT

# *submitted by*

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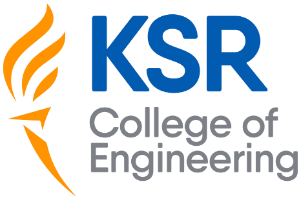
*in partial fulfilment for the award of the degree*

*of*

**BACHELOR OF ENGINEERING**

***in***

**ELECTRONICS AND COMMUNICATION ENGINEERING**

**K.S.R. COLLEGE OF ENGINEERING**

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**NOVEMBER 2024**

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Certified that this report **“Revolutionary Health Monitoring: IoT-Enabled Wearable Solar-Powered Jacket for Vital Sign Tracking, Remote Management, and Transformative Healthcare”** is the bonafide work of **“DHANUJA R(73152115010),SOWMIYA K(73152115071),VIGNESH R(73152115085)”** who carried out the project work under my supervision.

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Submitted for the project viva-voce examination held on ………………….

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**ACKNOWLEDGEMENT**

We feel highly honored to extend our sincere gratitude to our beloved Founder Theivathiru Lion **Dr. K. S. RANGASAMY, MJF.,** and our Chairman **Mr.R.SRINIVASAN, B.B.M., M.I.S.T.E.,** for giving us an opportunity and facilities for the completion of this project.

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**DECLARATION**

We affirm that the project report titled **“Revolutionary Health Monitoring: IoT-Enabled Wearable Solar-Powered Jacket for Vital Sign Tracking, Remote Management, and Transformative Healthcare”** submitted in partial fulfillment of the requirements for the award of the degree of Bachelor of Engineering is the original work carried out by us. It has not formed part of any other project report or dissertation since which a degree or award was conferred on an earlier occasion on this or any other candidates.

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To verify that the declaration made by the above candidates is true to the best of my knowledge.

Date: Name and Signature of the supervisor with seal

**ABSTRACT**

This project involves the development of an advanced health monitoring system designed to enhance the safety and well-being of individuals, particularly those who may be at risk of falls or experiencing temperature abnormalities. The system employs an Arduino-based microcontroller to interface with various sensors for fall detection, temperature monitoring, and battery voltage tracking, offering real-time health data and remote monitoring capabilities. The integration of these features ensures immediate detection and alerts, providing a proactive approach to patient care. The system’s core functionality revolves around three primary sensors: a gyroscope, a temperature sensor, and a voltage sensor. The gyroscope continuously monitors the movements of the user, utilizing its ability to detect rapid or abnormal motions to identify potential falls. This fall detection mechanism is crucial for preventing accidents, particularly for elderly or mobility-impaired individuals. When a fall is detected, the system promptly triggers an alert to notify caregivers, helping to ensure that the person receives timely assistance. Temperature monitoring is another essential feature of the system. A temperature sensor tracks the body temperature of the individual, providing early detection of abnormal temperature fluctuations. If the temperature exceeds a predefined threshold, indicating a fever or other health issues, the system activates a buzzer alert to immediately notify both the user and caregivers. This early-warning system serves as an important safeguard for detecting and addressing potential health concerns before they escalate. Battery monitoring is also a critical aspect of the system’s design. A voltage sensor tracks the health of the system’s battery, providing real-time feedback on the battery level. If the battery voltage drops below a certain threshold, indicating a need for recharging or replacement, an alert is generated to prevent system failure. This ensures that the monitoring system operates continuously without interruption, offering reliable performance when needed most. All sensor data is processed by the Arduino microcontroller, which evaluates the incoming readings for abnormal conditions such as high temperature or a fall event. Based on the data, the microcontroller triggers the appropriate alerts and updates the system’s display. Real-time health data, including the body temperature and fall status, is shown on an LCD screen, providing immediate feedback for the user or their caregivers. This display allows for quick assessment of the individual’s condition and facilitates quick intervention if necessary. IoT functionality to enable remote monitoring. The collected data is transmitted to a cloud platform or mobile device, allowing caregivers to monitor the user’s health in real-time, even when they are not physically present.

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| **ABBREVIATIONS** | |
| **TERMS** | **EXPANSION** |

**CHAPTER 1**

**INTRODUCTION**