BHARATI VIDYAPEETH'S COLLEGE OF ENGINEERING, KOLHAPUR.

Bachelor of Technology

In

DEPARTMENT OF ELECTRONICS &TELECOMMUNICATION ENGINEERING

A Seminar Report

On

"IOT Based Smart Wearable Posture Detection , Alert and Heating Cooling Therapy System"

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UNDER THE GUIDANCE OF

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CERTIFICATE

This is to Certify that seminar work entitled **"IOT BASED SMART WEARABLE POSTURE DETECTION , ALERT and HEATING COOLING THERAPY SYSTEM"** is a bonafide work carried out in the seventh semester by **"MR. AVADHOOT PRAKASH KHOLAMBE, MISS. SHRUTI PANDUIRANG MANE, MISS. DIYA DEEPAK PATIL''** in partial fulfilment for the award of Bachelor of Technology in Electronics and Telecommunication Engineering from Shivaji University Kolhapur during the academic year 2025-2026, who carried out the seminar work under the guidance and no part of this work has been submitted earlier for the award of any degree.

GUIDE	HOD	PRINCIPAL
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ABSTRACT

Poor posture due to prolonged sitting, digital device use, and lack of movement has become a serious health issue, often leading to back pain, muscle fatigue, and spinal disorders. Addressing this requires a smart, reliable solution that actively monitors and corrects posture in real time.

This project proposes an IOT-based smart wearable system that detects and corrects posture using inertial measurement units (IMU) and flex sensors connected to a Node MCU (ESP8266) microcontroller. The system monitors spinal alignment and alerts the user through vibration feedback and mobile notifications whenever poor posture is detected.

Using IOT connectivity, posture data is stored on the cloud for continuous analysis and personalized insights. This helps users track their posture habits and supports long-term health improvement through detailed monitoring and recommendations.

Additionally, the wearable includes a Flexible Heating Strip that provides heating therapy. The heating mode improves circulation and relaxes muscles, while the cooling mode reduces inflammation and fatigue. This combination of posture correction, data analysis, and thermal therapy makes the system an effective, user-friendly solution for maintaining spinal health and preventing musculoskeletal issues.