VISVESVARAYA TECHNOLOGICAL UNIVERSITY,

BELAGAVI-590018

Mini Project Report On

"Smart Tremor Monitoring System Using Arduino and SW420"

A report submitted in partial fulfillment of the requirements for

MINI PROJECT

In

Computer Science and Engineering (IOT, Cyber Security including Blockchain Technology)

Submitted by

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING (IOT, CYBER SECURITY INCLUDING BLOCKCHAIN TECHNOLOGY)

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CERTIFICATE

This is to certify that the Project entitled "**Smart Tremor Monitoring System Using Arduino and SW420**" has been successfully completed by

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the bonafide students of **Department of Computer Science & Engineering (IOT, Cyber Security including Blockchain Technology), Alva's Institute of Engineering and Technology** in **DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING (IOT, CYBER SECURITY INCLUDING BLOCKCHAIN TECHNOLOGY)** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the year 2023–2024. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of project work prescribed for the Bachelor of Engineering Degree.

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ABSTRACT

Tremors, characterized by involuntary rhythmic muscle movements, are a common symptom of neurological disorders such as Parkinson's disease. Monitoring these tremors is essential for understanding their severity, tracking disease progression, and evaluating treatment effectiveness. This project introduces a cost-effective and efficient Smart Tremor Monitoring System based on Arduino and ESP32, designed to provide real-time tremor detection and analysis.

The system utilizes an accelerometer, such as the MPU6050, to detect fine movements and vibrations in three dimensions. Data collected from the sensor is processed by an Arduino microcontroller and wirelessly transmitted using the ESP32's built-in Wi-Fi and Bluetooth capabilities. This enables seamless integration with mobile applications or cloud platforms for remote data visualization and analysis. The compact and wearable design makes the system suitable for continuous monitoring in daily activities, ensuring user comfort and convenience.

The proposed system provides a reliable platform for caregivers and healthcare professionals to monitor tremor patterns remotely, offering insights into a patient's condition and facilitating timely interventions. It also supports customizable thresholds, allowing alerts to be generated when tremor intensity exceeds predefined limits. By leveraging IoT technology and energy-efficient components, the system ensures sustained operation and scalability for broader healthcare applications.
This project highlights the potential of combining microcontrollers and IoT technology to create innovative, accessible solutions for health monitoring, ultimately improving the quality of life for individuals with tremor-related conditions.