A REPORT
ON

Dashboard For Real Time Monitoring Of Construction Projects

Submitted by,

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Under the guidance of,

Dr. Leelambika K V

in partial fulfillment for the award of the degree

of

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE AND ENGINEERING (DATA SCIENCE)

At

GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

PRESIDENCY UNIVERSITY

BENGALURU

May 2025

PRESIDENCY UNIVERSITY

SCHOOL OF COMPUTER SCIENCE ENGINEERING

CERTIFICATE

This is to certify that the Project report **"DASHBOARD FOR REAL TIME MONITORING OF CONSTRUCTION PROJECTS"** being submitted by "ANU SHREE, DHRUTHI REDDY N, SANIYA BEGUM" A bearing roll number(s) "20211CSD0095, 20211CSD0173, 20211CSD0109" in partial fulfillment of the requirement for the award of the degree of Bachelor of Technology in Computer Science and Engineering in Data Science is a Bonafide work carried out under my supervision.

Leelambika 16/5/2025

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DECLARATION

We hereby declare that the work, which is being presented in the project report entitled **"DASHBOARD FOR REAL TIME MONITORING OF CONSTRUCTION PROJECTS"** in partial fulfillment for the award of Degree of **Bachelor of Technology** in **Computer Science and Engineering in Data Science**, is a record of our own investigations carried under the guidance of **DR. LEELAMBIKA K V, ASSISTANT PROFESSOR, SENIOR SCALE, Presidency School of Computer Science Engineering, Presidency University, Bengaluru.**

We have not submitted the matter presented in this report anywhere for the award of any other Degree.

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ABSTRACT

The **Dashboard for Real-Time Monitoring of Construction Projects** is an advanced digital solution designed to improve efficiency, transparency, and decision-making in construction project management. Traditional monitoring approaches often result in delays, miscommunication, and inefficient allocation of resources. This system overcomes these challenges by consolidating real-time data from multiple sources, including IoT-based monitoring devices, project management software, and manual site inputs, into a centralized, interactive dashboard.

The platform utilizes Next.js for the frontend, providing a dynamic and responsive user experience, while **Zustand** efficiently manages application state. The interface is built with **Tailwind CSS**, ensuring a modern and intuitive design. Depending on data requirements, **PostgreSQL, MySQL, or MongoDB** is employed for database management. To enable real-time updates on project progress, resource utilization, financial tracking, safety compliance, and scheduling, the system leverages **WebSockets or MQTT** for seamless data synchronization.

Key features of the system include progress tracking, resource and financial management, schedule supervision, and real-time safety monitoring. Data visualization tools like **Chart.js and Recharts** are incorporated to present critical project insights in an easily interpretable format, enabling stakeholders to make informed decisions. Additionally, role-based authentication and access control are implemented to ensure data security and maintain confidentiality within the system.