

Web-Based Construction Management System

SE2030 – Software Engineering

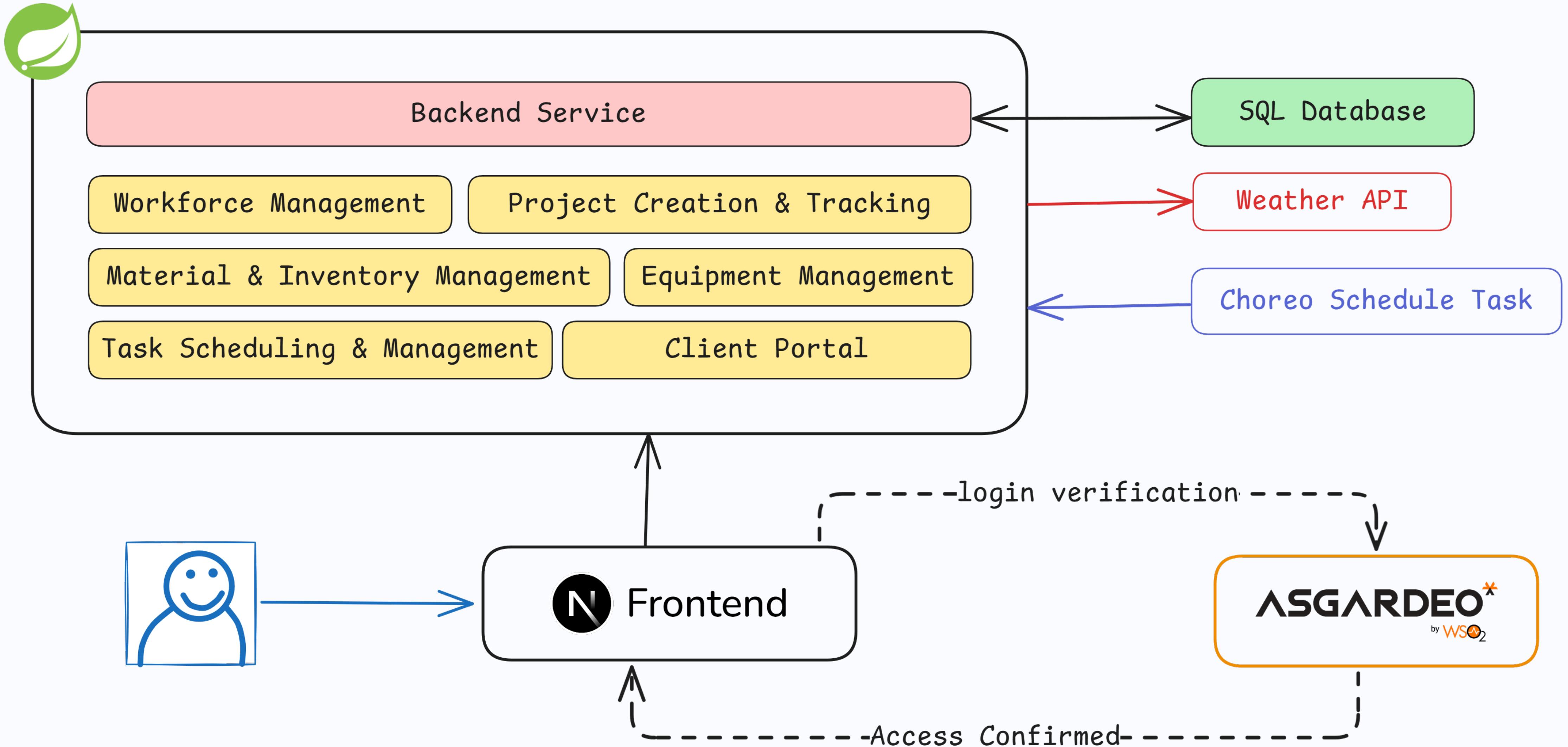
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Overview

This project focuses on creating a Web-Based Construction Management System for Build Smart Constructions, a company in Sri Lanka.

Purpose: To automate and streamline the company's manual construction processes like calls, paperwork, and emails.

Objectives : Improve project tracking, manage workforce and tasks, track inventory and equipment, provide real-time updates to clients, enhance transparency and reduce miscommunication.



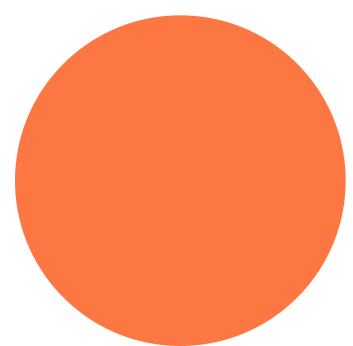
Functional Requirements

- 1 Create and manage projects
- 2 Assign workforce and schedules
- 3 Monitor materials and equipment
- 4 Schedule tasks and track deadlines
- 5 Track budgets and generate reports
- 6 Provide client access and updates

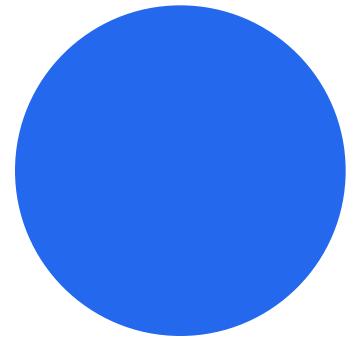
Non-Functional Requirements

- **Performance:** Supports 1,000+ users, fast page loading
- **Security:** HTTPS, authentication via WSO2 Asgardeo
- **Usability:** Clean UI with user guides
- **Reliability:** 99.9% uptime, automated backups
- **Deployment:** Cloud-hosted on WSO2 Choreo

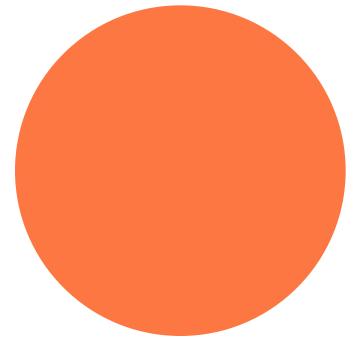
Major Stakeholders



Company Owner



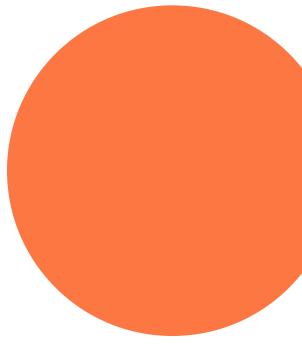
Senior Project Manager



Finance Officer



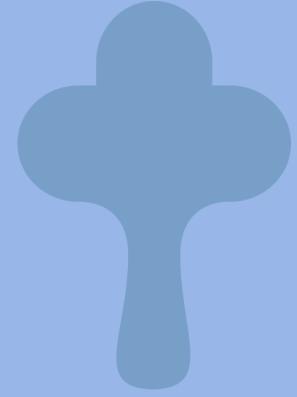
Civil Engineer



Site Supervisor



Client Relationship Officer



Project Creation and Management

IT24103918 (Wagawala W.L.U.N)

Allows users to create new construction projects, monitor progress, track milestones, and manage budgets. It also supports generating summary reports for better project visibility.

Workforce Management

IT24103913 (Mahindarathne R.M.P.K.T)

Handles assigning workers to tasks, managing schedules, and tracking availability. It helps improve coordination and ensures efficient use of human resources.





Material and Equipment Management

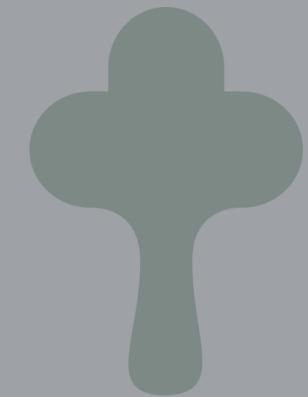
IT24103979 (*Hamshithan. v*)

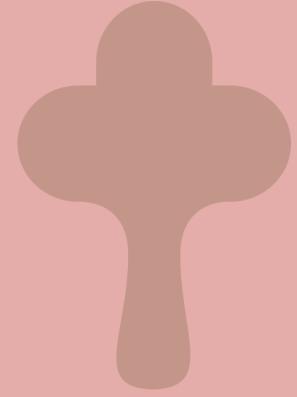
Manages inventory levels, tracks material usage, and monitors equipment availability. Alerts are generated for low stock and upcoming maintenance needs.

Task Scheduling and Management

IT24103885 (Senarathna Y.M.C.S)

Enables task creation with deadlines and priority settings. Tracks task progress and handles dependencies to keep project timelines on track





Financial Management

IT24103965 (*Shruthihan s*)

Records expenses and monitors budget usage.
Helps generate reports and analyze cost data to
ensure financial control over projects.

Client Portal & Communication

IT24103927 (Hettiarachchi H.S.A)

Provides clients secure access to view project updates, reports, and shared files. Improves transparency and strengthens client engagement.



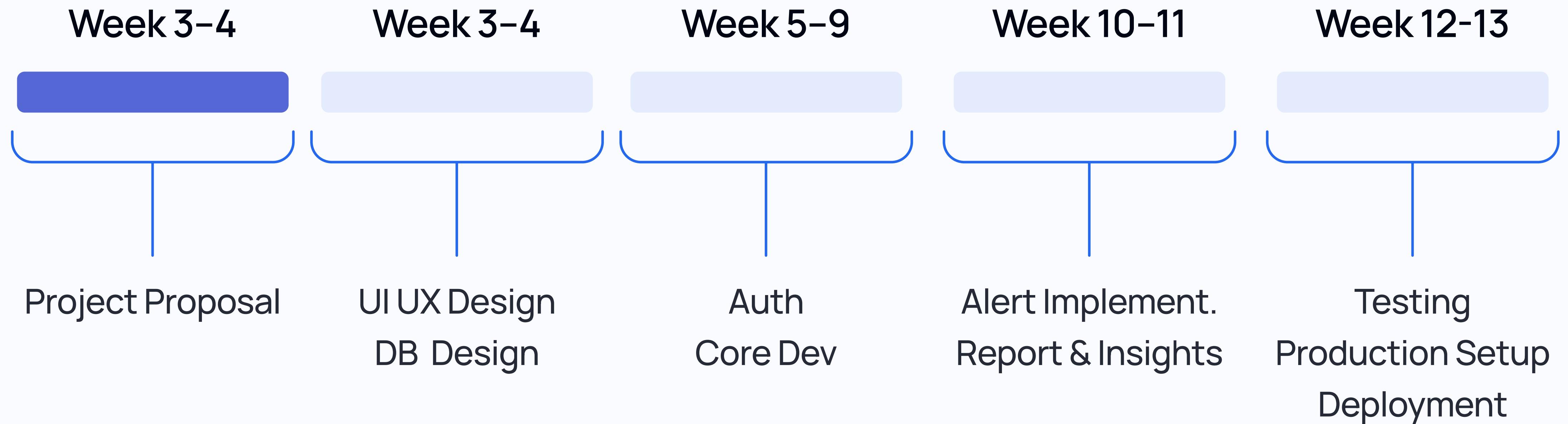
Minor Functions

- **Notifications and Alerts:** Task reminders, low-stock warnings
- **Simple Reporting:** Progress summaries, usage data
- **User Profile Management:** Update name, password
- **External Integrations:**
Real-time weather updates via Weather API

System Limitations / Constraints

- **Browser Compatibility:** Works only on modern browsers
- **Internet Dependency:** No offline mode
- **No Payment Gateway:** Only tracks payment status; no direct payment processing
- **Device Compatibility:** Best experienced on desktop/laptop; mobile optimization is limited in v1

Project Timeline



This project delivers a centralized, web-based platform to modernize construction management for **Build Smart Constructions**.

The system solves common issues such as:

- **Delays in communication**
- **Poor visibility into project status**
- **Manual errors and inefficiencies**

By implementing this system, the company can streamline operations, reduce workload, and improve client satisfaction. **We are confident in its feasibility and committed to delivering a robust and valuable solution.**



Thank You