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VISHWA S

B.TECH IT

GREEN CAMPUS PERFORMANCE DASHBOARD

Software Requirements Specification (SRS)

Problem Statement

Managing campus sustainability data such as energy consumption, water usage, waste generation, and eco-friendly initiatives manually or using spreadsheets is inefficient and prone to errors. There is a need for a centralized system that collects, stores, and visualizes campus environmental data effectively to enable better decision-making and monitoring.

Solution

The **Green Campus Performance Dashboard** is a web-based application built using **React, Vite, and MongoDB** that centralizes campus environmental data and displays key metrics through an interactive dashboard. It provides insights into energy, water, and waste consumption, helping campus authorities and students monitor sustainability efforts and take informed actions.

Frontend Technologies

- React.js – Component-based UI for reusable and maintainable code.
- Vite – Fast development server and build tool.
- Recharts – Line and bar charts to visualize energy, water, and waste data.
- HTML5 & CSS3 – Page structure, styling, and layout.
- Tailwind CSS / Bootstrap – Responsive design for multiple screen sizes.
- JavaScript (ES6) – Frontend logic and interactivity.

Backend Technologies

- Flask + Python **–** Lightweight backend server to serve API endpoints.

• RESTful APIs – Endpoints for energy, water, and waste data (/api/energy, /api/water, /api/waste).

• JSON – Standard data format exchanged between frontend and backend.

Database Technologies

MongoDB – Document-oriented NoSQL database to store campus sustainability data.

Development Tools

• Visual Studio Code – Code editor.

• Postman – API testing.

• Git & GitHub – Version control.

• Node.js / npm – Package management for frontend dependencies.

Server and Deployment

• Localhost – Development server for frontend and backend.

• MongoDB (local or Atlas) – Database server.

• Optional future deployment to cloud for real-time access.