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InfoGrid: Real-time Digital Information Board

by:

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BSCS-3A

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Introduction

Overview:

InfoGrid is an interactive digital information system designed to assist users by providing real-time announcements, essential information, and guidelines. This system enhances

communication and accessibility by offering a centralized platform and repository for delivering vital information tailored for different kinds of needs.

Problem Statement:

Organizations and their stakeholders often struggle to access up-to-date information about schedules, policies, or other operations. This lack of centralized, real-time solution results in inefficiencies, miscommunication, and frustration. InfoGrid addresses these challenges by providing a user-friendly, web-based platform that serves as a dynamic repository for announcements and information, adaptable to various industries.

Objectives:

- **Real-Time Information Board:** Provide a real-time digital announcement or information board.
- **Centralized Information Repository:** Offer an easily accessible repository of essential DFA services and information.
- **Streamlined Communication:** Streamline the process of disseminating information, policies, guidelines, and requirements.

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Project Scope

In-Scope Features:

- **Admin Panel:** Admin Panel with CRUD functionalities for managing announcements and information.
- **Real-Time Updates:** Display updates and details regarding DFA policies, facilities, and guidelines.
- **User-Friendly Interface:** Ensure the ease of navigation and accessibility for all users, including those with limited technical knowledge.

Out-of-Scope Features:

- Strictly a web-based system
- Will not be using external hardware or physical machines
- System will be available in the English language only.

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Technical Requirements

Programming Languages & Frameworks:

InfoGrid will be developed using **Svelte** for building a dynamic and responsible user interface, along with **Tailwind CSS** and **Shadcn** for streamlining styling and component management. For the backend, **Python** with the **FastAPI** framework will be utilized to handle server-side logic, ensuring high performance and scalability. Data management will be handled by using **PostgreSQL.**

Hardware & Software Requirements:

The system will require **desktop and mobile browser compatibility** to ensure accessibility across devices. An internet connection will be necessary for real-time updates and seamless communication between the client and server.

Third-Party Dependencies:

For hosting, we will utilize the cloud service Hostinger, which will provide scalable and secure infrastructure for backend and database hosting.

System Architecture

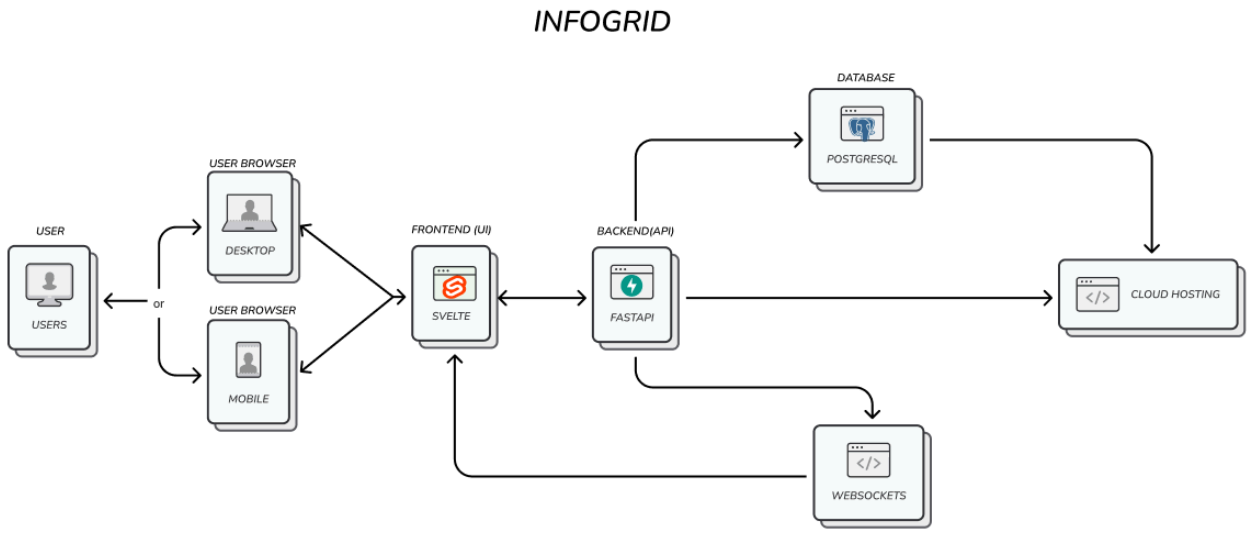

Figure 1. InfoGrid System Architecture

Development Methodology

Agile Methodology - InfoGrid project will be utilizing the Agile Methodology to ensure an interactive and flexible development environment. This approach will focus on incremental progress in short, two-week cycles known as sprints. This will allow the team to build, test, and improve on the system continuously. The team will engage in sprint planning to prioritize tasks, project objectives, and viability. Standup meetings will be held to track progress, address obstacles, and promote collaboration among the team. Trello will also be utilized to track each member's progress and disseminate tasks. By using this methodology, the team can adapt to evolving requirements, catch problems early, and deliver a final product that closely meets user expectations

Timeline and Milestones

Phase	Description	Start Date	End Date
Phase 1: Requirement Analysis	Discuss system requirements, system scope, and finalize features	Feb 1, 2025	Feb 8, 2025
Phase 2: Design & Prototype	Create wireframes, system architecture design, and user interface prototypes	Feb 9, 2025	Mar 12, 2025
Phase 3: Development	Begin the development of the system, implement frontend and backend.	Mar 12, 2025	Apr 14, 2025
Phase 4: Testing & Debugging	Conduct quality assurance testing, identify bugs, and fix issues	Apr 15, 2025	Apr 28, 2025
Phase 5: Deployment & Maintenance	Deploy the system on a live server, monitor performance, and handle feedback for further improvements	Apr 29, 2025	May 10, 2025

Potential Risks:

- **Limited Resources:** A shortage of manpower or technical expertise might delay the project.
- **Technical Challenges:** Unexpected issues with integrating Svelte, FastAPI, or PostgreSQL may arise, delaying implementation.
- **Evolving Scope:** Evolving user demands or unclear requirements could expand the project beyond its intended scope, straining timelines and resources.

Mitigation Strategies:

- Ensure Proper technical research and use well-documented libraries/APIs.
- Set realistic timelines and regularly monitor progress to avoid delays.
- Define and document a clear scope during Phase 1. Each new feature will be evaluated based on time and resource constraints.
- Use tools such as Trello for real-time communication and task tracking.

Budget and Resource Allocation

- **Estimated Cost:** 1,500
- **Hardware/Software Requirements:**
  - Development machines for team members
  - Cloud Hosting for backend and database services
- **Manpower Allocation:**
  - 3 Developers (Frontend and Backend)
  - 1 Tester (QA Assurance)
  - 1 Project Manager (Overseeing Tasks, Timelines, and Communication)

Expected Outcome

A fully functional interactive information board that displays real-time announcements and service information

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Conclusion

InfoGrid aims to provide a modern platform for businesses and institutions, enhancing their ability to communicate updates and share critical information efficiency. By implementing this system, we seek to offer a flexible solution to the challenges of information dissemination across diverse contexts.

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