Project Title: Academic feedback system

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Department: Information and Communication Technology

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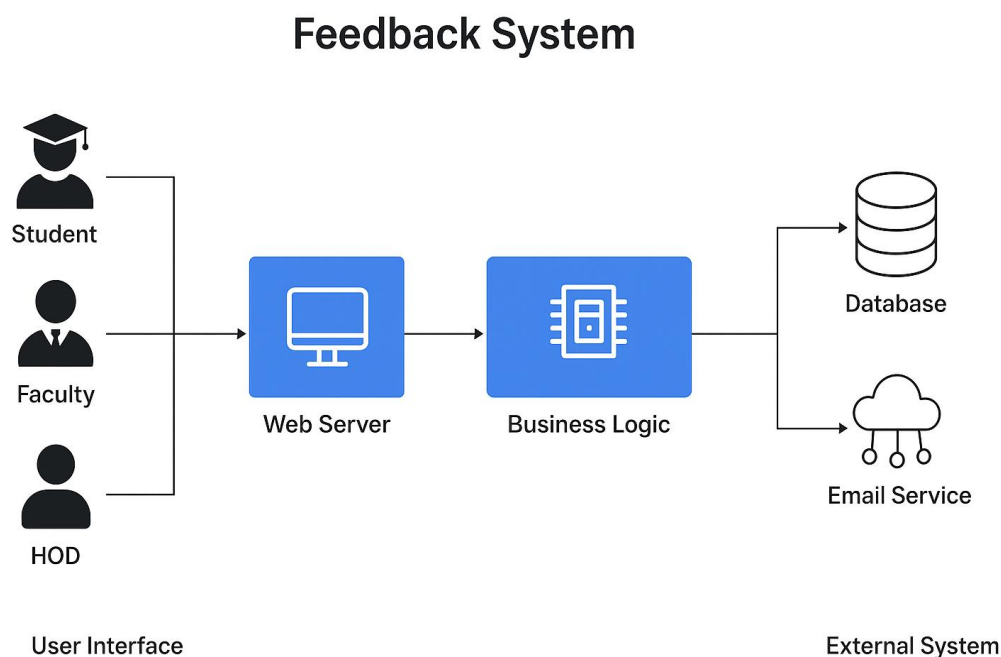Rajkot-360003, Gujarat, India

System Design and Architecture

Introduction

This section outlines the technical blueprint for the **Academic feedback System**. I will explain how the system will be designed and built to ensure it is reliable, easy to maintain, and ready for future growth. The goal is to create a robust and logical structure that can handle a lot of data and many users without slowing down. I will be using my selected solution, the Web Application and Analytics Dashboard, as the basis for this design.

Modular Design

To make the project manageable and scalable, I have divided the system into three main, independent parts, or modules. This modular design approach ensures that I can work on each part separately and update them without affecting the entire system.

1. **Front-End Module:** This is the part of the system that users see and interact with. It includes the student feedback forms and the HOD's dashboard. This module is built using HTML, CSS, and JavaScript. Its main job is to display information and collect user input. It does not handle any complex data processing or storage on its own.
2. **Back-End Module:** It handles all the logic, like receiving feedback from students, processing it, and sending the right data to the HOD's dashboard. It acts as the bridge between the front end and the database. This module is built with PHP.
3. **Database Module:** This is where all the information is stored. It has built using MySQL. The database will contain tables for student feedback, faculty details, assessment information, and events. The back-end module communicates with the database to store and retrieve data securely.

Feedback System

Student
Faculty
HOD
Web Server
Business Logic
Database
Email Service

User Interface
External System

Technology Stack

I have carefully chosen my technology stack to ensure the project is both feasible and high-performing.

- **Front-End (HTML, CSS, JavaScript):** These are the standard building blocks for any website. I chose them for their universal compatibility and because they allow me to create a user-friendly and responsive interface.
- **Back-End (PHP):** I chose PHP because it is a very common and powerful server-side language. It works perfectly with MySQL, and I have experience using it for web applications. PHP is also known for being very reliable and secure when used correctly.
- **Database (MySQL):** MySQL is a relational database management system that is ideal for structured data like what my project will use. It is known for its speed, reliability, and security. It is also completely free and open-source, which aligns with my project's economic feasibility.

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Scalability Planning

Even though my project will start small, I have planned to make sure it can handle more users and more data in the future.

- **Handling More Users:** If the student body grows, the system will need to handle more feedback submissions at the same time. I will also use caching to store frequently accessed data temporarily, which will reduce the number of times the database needs to be queried.
- **Handling More Data:** Over time, the database will collect a huge amount of feedback. To keep the system running fast, I will consider database sharding. This means dividing the database into smaller, more manageable parts, which can be spread across different servers. This prevents any single part of the database from becoming a bottleneck.
- **Security and Reliability:** To keep the system reliable, I will implement regular data backups. For security, I will follow best practices for PHP and MySQL development, including using prepared statements to prevent SQL injection attacks.

Conclusion

This system design provides a technical foundation for my project. By using a modular approach, a reliable technology stack, and a clear plan for scalability, I am confident that I can build a system that is not only robust and secure but also capable of growing with the needs of the department. This design will allow me to create a valuable and long-lasting tool that effectively solves the problem I identified.