Linnæus University
Sweden

Project Proposal

Project with Embedded System

”Antal personer i byggnad”

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Project Description

We propose the development Real-time Monitoring System for the student library. The primary objective is to measure the number of people inside the building and analyze patterns to identify peak and off-peak hours.

Project Objectives:

Implement a tracking system to monitor the number of people in the student library in real-time.
Analyze historical data to identify peak and off-peak hours, enabling optimized resource allocation.
Develop a user-friendly interface to access occupancy data.

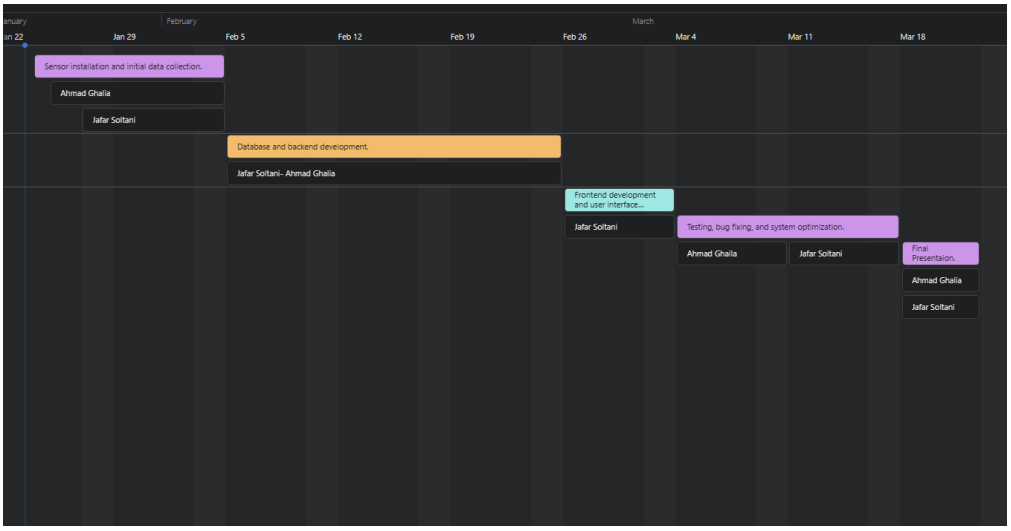
Scope of Work:

Install IR sensors inside the library doors to capture real-time data.
Develop a centralized database to store and manage occupancy information.
Implement a user interface accessible via web for library visitors to check real-time occupancy status.

Technology Stack:

Occupancy Sensors: Infrared sensors, camera-based systems(respberry pico camera v2), or RFID technology.
Database: MongoDB or firebase for efficient data storage and retrieval.
Backend:efficint programing language(python or c++) for data processing and analysis.
Frontend: HTML, CSS, JavaScript for user interfaces.

Implementation Timeline:
week 4-5 : Sensor installation and initial data collection.
week 6-8: Database and backend development.
week 9: Frontend development and user interface implementation.
week 10-11: Testing, bug fixing, and system optimization.
week 12: Final Presentaion.



Extra feature:

To achieve a high degree in the course, we aim to install camera in the door of the building. This setup is designed to identify individuals entering and exiting, allowing us to analyze the frequency of individuals entering the building in a single day. In the event that the camera system does not achieved the desired results, we will resort to manually counting the number of individuals and conducting a comprehensive analysis based on this data.

Benefits:
Efficient resource allocation based on real-time occupancy data. Enhanced user experience with information on peak and off-peak hours. Improved safety and security through monitoring crowded areas.

Conclusion:
The Real-time Occupancy Monitoring System will revolutionize the management of the student library, providing valuable insights.
We look forward to the opportunity to develop and implement this innovative solution, contributing to a more efficient and user-friendly library experience.