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Project Charter - Group 13

Problem Statement

We would like to solve the issue of individuals being unfamiliar to Purdue's campus and building layouts. While current maps provide outdoor navigation on Purdue's campus, they do not provide any indoor navigation inside buildings. We would like to develop an application that features both outdoor and indoor navigation capabilities as well as other interesting features.

Project Objectives

We would like to develop an interactive way to navigate and explore the Purdue campus. Our product will feature outdoor navigation for Purdue's campus and indoor navigation in some of Purdue's buildings. Users will be able to add locations and navigation graphs to the maps to specify where rooms are within the building. We will also add features such as congestion tracking for paths and rooms, route duration prediction, a feedback system for fastest routes, room reservation, and interesting facts about landmarks on Purdue's campus.

Stakeholders

- New Purdue Students, Staff, and Faculty
- People unfamiliar with Purdue's campus who need to navigate it
- Guests of Purdue University
- Us, the developers
- Our Project Coordinator, Krish

Project Deliverables

A web application that provides users with outdoor and indoor navigation. The application will also feature congestion tracking, fastest route feedback, room reservation, and interesting facts about Purdue.

- Front end (React/JavaScript)
    - Outdoor navigation interface using Google Maps API
    - Indoor navigation interface using backend implementation
    - Congestion visualization feature
    - Route duration prediction
    - Feedback form for fastest routes
    - Room reservation feature through a link to Purdue website(s)
    - Information about the history of Purdue and its buildings
    - Ability to view the charts of most popular routes and rooms
    - Feedback form with the ability to mark the route you took which was faster that the one we proposed
- Back end (Node.js, MongoDB)
    - Database that stores indoor maps of buildings
    - Database with statistic information (Most visited rooms, most popular routes)
    - Implementation of indoor navigation system (graph algorithms / api)
    - Congestion tracking implementation