Project Charter - Group 6

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Purdue Parking App

1. **Problem Statement**
   a. Purdue's campus, with nearly 50,000 students plus faculty, staff, and visitors, lacks a way to view real-time parking availability. Current resources only list parking options but provide no information on open spaces, leaving commuters frustrated and wasting time searching for spots. Our app will provide live availability data to help users make faster, more informed commuting and parking decisions.

2. **Project Objectives**
   a. Using a camera and computer vision, build a server leveraging cloud resources that counts the number of cars going into and out of a parking lot and updating a counter in real time
   b. Build a mobile application (React Native) that interfaces with the server and get the real-time parking availability and display them to the end user
   c. Integrate with user calendars to display estimated necessary departure times for classes and events
   d. Provide insights on parking-related trends, such as approximate times when certain parking lots get full.

3. **Stakeholders**
   a. **Users**: Commuters, employees, faculty, visitors, anyone that wants to park at Purdue
   b. **Developers**: Pranay Nandkeolyar, Utkarsh Majithia, Anthony McCrovitz, Logan Portscheller, George Samra, and Neel Vachhani
   c. **Project Coordinator**: Matthew Wind
   d. **Project Owners**: Pranay Nandkeolyar, Utkarsh Majithia, Anthony McCrovitz, Logan Portscheller, George Samra, and Neel Vachhani

4. **Deliverables**
   a. A React native frontend for mobile apps that will display the counts and availability of parking on campus.
   b. A backend built in Java/Python using Redis/PostgreSQL that will contain and update counts and communicate with the cameras
   c. Cloud infrastructure hosted in AWS for services like Redis and PostgreSQL through using AWS ElastiCache for Redis and Amazon Relational Database Service or other similar, free cloud services to host backend-related information.