EE / CprE / CybE / SE / SD 491– sddec24-17
SmartPark: IoT-Driven Automatic Parking Solution

Week 4 Report

Feb 21 – Feb 27
Client / Advisor: Md Maruf Ahamed

Team Members:

William Clemmons - Project Lead and Software Design.
Kennedey Reiling - Client Interaction and Hardware Design.
Brian Witherspoon - Hardware and Software Design.
Ethan Haberer - Hardware Design and Quality Control.
Zachary Sears - Hardware Design and Quality Control.
Mubassir Serneabat Sudipto - Client Interaction, Quality Control, and Software Design.

Past Week Accomplishments

- Project Team
  - We have presented our research to the client for feedback on design decisions.
- Application Team:
  - We decided to move forward with React Native as our framework after multiple discussions.
- Server Team:
  - We await specifics on their selection of server infrastructure and hosting solutions.
  - Details on implementing Self-Hosting BaaS or alternative hosting options are pending. We are currently proceeding with BaaS as per the suggestion from the advisor/client.
  - Evaluation of projected costs, scalability, and security measures for server setup remains to be shared.
- Hardware Team:
  - We decided to move forward with ultrasonic sensors to detect parked vehicles.
  - We also decided on using Bluetooth modules and WiFi Arduino boards for wireless data communication.
  - We decided where the sensors would be placed concerning the parking spot.

Pending Issues

We are currently negotiating with ETG to gain more Arduino boards; the extra Arduino boards would allow the hardware team to iterate faster when prototyping.

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
William Clemmons	Prepared a presentation for the client containing our results from research.	3	15
Kennedey Reiling	Presented our sensor options to our client. With his feedback decided to move forward with the ultrasonic sensor. Contacted ETG about acquiring parts we can use for prototyping.	3	14
Brian Witherspoon	Looked at potential issues that we will most likely face when it comes to weatherproofing our design	3	14
Ethan Haberer	Did online training for JavaScript and observed videos of app development using React Native	3	14
Zachary Sears	Designed a rough draft block diagram displaying the connections between the Arduino board and the sensors.	4	15
Mubassir Serneabat Sudipto	Prepared Condense Research Analysis on Server and Hosting selection for the project. Researched the server and hosting, how to implement a Self-Hosting Back end as a service (BaaS) server, the projected cost for hosting, and possible drawbacks that can come forward while developing the project.	4	16

Plans for Coming Week

- Application Team
    - We are getting started on learning app development with React Native.
    - We are prototyping the user interface for our application.
- Server Team
    - We are getting started on learning how to gain access and use the server for the project.
- Hardware Team
    - We are conducting experiments with Arduino boards and sensors.