PTC Inc. IoT Project

Overview
The problem statement proposed by our sponsor PTC Inc. was to build an Internet of Things (IoT) solution that solved a problem in our community using the Thingworx platform. Thingworx is an IoT platform built by PTC that allows to quickly build and deploy IoT applications. Our task was to brainstorm on a project, go through the ideation and design process for it and then build the solution using Thingworx to work in real-time. The problem that we sought to solve was the parking situation in State College, specifically making the process of finding parking easier for people.

Objectives
- Design and Build an IoT parking system that can give users information in real-time
- Use IoT to empower parking lot owners to make better decisions using real-time and historical data

Approach
- Brainstormed problems in our community that could be potentially solved by using IoT
- Generated concepts for our favourite ideas and go through a selection process to pick the winner
- Construct a System Level Design to understand the necessary parts needed
- Learn how to use the Thingworx platform and inform the System Level Design based on features of the platform as well as learnings from this step
- Constructed a Data Model based on the Thingworx platform to understand data flows inside the platform as well as necessary data to power the system
- Divided the finalized System Level Design into parts that were then divided into Tasks for each team member
- Constructed an initial prototype that mimicked the main functions of our solution
- Met with PTC to evaluate the prototype and generate a path forward towards a more finalized prototype
- Iterated on prototype, adding more features, finalizing the data model on the platform
- Improved cosmetic look of the solution

Outcomes
- Successfully made use of the Thingworx platform to build an IoT solution that solved a problem in our community
- The final solution implemented the main functionality of our design, specifically empowering users to look at real-time parking data