SDMAY18-37 - System and app for managing general faculty/staff parking on ISU campus
Advisor: Ahmed E. Kamal

Donavan Brooks: Backend Lead
Derrick Lockwood: Team Lead
Joseph Krajcir: Quality Assurance
John Ingwersen: Mobile Master
Riley Snyder: Webmaster
Mason Schreck: Communications Lead

Weekly Summary:

Past Week Accomplishments:
Donavan Brooks: Finished working on the ML Model that we are using for image classification with Derrick. Worked on the Testing and implementation section of our design document.
Derrick Lockwood: Finished up development of layers for ML model with Donavan. Worked on saving and loading model from memory. Worked on loading data into model to use to train the machine.
Joseph Krajcir: Established differences between the Arlo camera system and Blink camera system. Also found user-made API for each camera system on GitHub. Worked on pulling spot data through Firebase in a React Native app(ran on Android).
John Ingwersen: Continued mobile development and design document. Looking for more options to support device consistency.
Riley Snyder: Started to implement image slicing. Currently testing. Worked on assigned portions of the design document.
Mason Schreck: Worked on portion of the design document, continued work on pre-processing logic to distinguish if a current connection is active on the Pi

Pending Issues:
Donavan Brooks: Looking into setting up our predictor model in Tensorflow. Also still need to find a permanent solution to our Python setup environment. Looking into using Docker as a permanent solution to our python environment, so that everything is self-contained.
Derrick Lockwood: Running into out of memory error when I try and run the learning algorithm on a tensor with shape (?, 256, 256, 3) based on the rgb values instead of a single black white image (?, 256, 256, 1).
Joseph Krajcir: Getting runtime errors when trying to get spot information and represent that data in a React Native app.
John Ingwersen: Running into issues when trying to run React Native.
Riley Snyder: None.
Mason Schreck: Issues with trying to figure out the Python firebase library.

Individual Contributions:

Name	Individual Contributions	Hours This Week	Hours Cumulative
Donavan Brooks	ML Model, design document, began looking at the Predictor model	9	33
Derrick Lockwood	ML Model work specifically on training step.	12	47
Joseph Krajcir	Arlo vs Blink. Found API for both systems. Trying to query FirebaseDB and show in app.	4	22
John Ingwersen	Mobile app improvements and design.	4	22
Riley Snyder	Image spliting/Design Document Sections	4	25
Mason Schreck	Pre-processing cli and heartbeat implementation	4	21

Comments and extended discussion:

Plan for coming week:
Donavan Brooks:
Derrick Lockwood: Fixing issues with training. Running a successful training step. Getting the model to load and save. Possibly - run training steps on offsite vm post-processing; get accuracy of train step completion.
Joseph Krajcir: Create a basic ScrollView that gets spot information from Firebase and represent in app. Stretch: Create a more dynamic list that will allow to pull from any lot and any number of spots.
John Ingwersen: Run react native and create template with this.
Riley Snyder: Finish image splitting.
Mason Schreck: Finish multi-threaded pre-processing setup to handle concurrent connection testing and to receive commands to split images.

Summary of weekly advisor meeting:
The project plan v2 is due in two weeks. Ahmed will be leaving on the 27th so we will need to finish this before he leaves so we can get a review in before that. We are now in the timeframe for infrastructure setup so we will need to start on deciding on equipment and making purchases. We will also be testing this possibly at Donavan's apartment since he has an overview of a parking lot from his window.