# EE 491 WEEKLY REPORT 9 3/28/16

**Group number:** DEC1620
**Project title:** Miniature Tracking FOB
**Client & Advisor:** Flagger Pros USA, Advisor Nathan Neihart
**Team Members/Role:** Tristan Walters – Team Leader
David (DC) Carlson – Team Communication Leader
Brandon Trent – Secondary Team Lead
David Dalo – Key Concept Holder
Alex (Sunny) Sundholm – Secondary Communication Lead
Tyler Dahle – Team Webmaster

## Weekly Summary

We had our regularly scheduled meeting with Dr. Neihart on Friday, and got all of the paperwork for IP and NDA completed. Now all we need to do is get that turned in to Dr. Mina (instructor signature is our last step) and we will have that taken care of. Most of our ordered parts came in this week, with the exception of the cellular chipset, which arrived today, 3/28.

## Past week accomplishments

- Ordered parts have come in
  - 2 microcontroller development kits/launchpads
  - 2 GPS breakouts
  - 2 cellular development kits
- Set up cellular account through client using 3rd party system

## Pending issues

- Managing component power consumption
  - Will be addressed when we have working prototype
- Waking a microcontroller from a low power sleep mode
  - Have GPS trigger different events?
- Cellular Communication
- We have a 3rd party GSM chip that charges for activation and amount of data used per month
- Keeping microcontroller clock running?
  - Only want to update location once or twice a week

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## Individual contributions

| Name | Individual Contributions | Hours this week | Cumulative hours |
|---|---|---|---|
| Tristan Walters | Attended advisor meeting, set up cellular account with client | 2 | 26 |
| David Carlson | Attended advisor meeting, researched external antennae, GPS pin layout | 3 | 24 |
| Alex Sundholm | Attended advisor meeting | 1 | 24 |
| Brandon Trent | Attended advisor meeting, set up cellular account with client | 2 | 37 |
| Tyler Dahle | Attended advisor meeting | 1 | 28 |
| David Dalo | Attended advisor meeting, began installing Code Composer 6 | 2 | 16 |

## Comments and extended discussion

Our major accomplishment is that parts have come in and we can begin building a prototype before school ends. We were concerned that the cellular chipset was not going to get here before we ran out of time to accomplish anything meaningful. We also need to begin learning Code Composer 6, the IDE for TI microcontroller development.

## Plan for coming week

- Meet on Tuesday during class to figure out schedule for this week
- Most likely meet on Wednesday to begin building prototype
- Advisor meeting on Friday (maybe)

## Summary of weekly advisor meeting

**Topics Covered:**
Need to use Code Composer 6 for the microcontroller.
Goal for the end of the semester:
Be able to talk to the server with the GPS
A good block diagram for how it all works
Need really solid plan of what we are going to be doing next semester
Over the summer, good idea to keep knowledge of the microcontroller fresh.
For next week start putting stuff together.
Start reading up on the datasheet for the GPS.
See where we can store our hardware.
Look into how to wake up the microcontroller.
For Next Week:
How long can the battery last?
How many times are we broadcasting the information?
How to get it to broadcast the information?
Look into the Low Power Modes to decide on which mode to configure it in.

How to we shut down all of the different components that we don't need.

Calculate power consumption for once a day, every other day, and once a week.

Is it more beneficial to use a cold start with a longer startup time or constant power draw from low power mode and a shorter warm start?

Decide what we are going to do for the web application for development and database. And what are the entries of the database. What happens when something stops responding? What happens when a bunch of these devices try to update the database at once? How do we stagger the transmissions to the database. How long do we wait for a response.

How are we going to uniquely identify each device?

See if the microcontroller can write to memory.

Get all of the little details flushed out by the end of the semester. Talk more about it next week.

Target is 9 months for the length of the battery.