EE 491 Weekly Report 8

Date: 10-25-16 -- 10-31-16

Group Number: May1735

Project Title: Cy-Mote

Advisor: Dr. Daniels

Team Members:

Kyle Fischer - Team Lead

Michael Linthicum - Communications Lead

Daniel Shauger - Concept Holder Lead

Sam Neff - Webmaster

Nick Juelsgaard - Schedule and Planning Lead

Summary of the Week:

Work continues on each piece of the board. We had our weekly planning meeting and our now weekly group work meetings. We are putting together our plans for the Alpha board and we are looking into the design for the PCB beta model. Making very good progress on communicating with MCU over USB and the 9ºoFreedom over SPI.

Past Week Accomplishments

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| --- | --- | --- | --- |
| Name | Accomplishments | Time worked | Cumulative Time |
| Kyle Fischer | Verified the BLE dongle we bought works.  More BLE research. | 3 | 26 |
| Michael Linthicum | Can successfully read from LSM9DS0 registers via B11 SPI.  Successfully set up a UART connection between the B11 and a terminal so I can see data displayed and more quickly debug and progress. | 6 | 35 |
| Daniel Shauger | Got PWM modules to work after contacting Atmel support, we now have a way to view analog output | 9 | 29 |
| Sam Neff | Met with Nick to discuss power and circuit design. Developed list of necessary circuits. Set up meeting with Dr. Tuttle for circuit design guidance. Researched batteries and regulation devices. | 5 | 26 |
| Nick Juelsgaard | 🚹👶👶🚺 Found out my wife is pregnant with twins. Worked on Power Management chip research and securing a BLE dongle. Met with Sam to discuss the power circuits. Divided work and we will work in parallel for a couple weeks. Talked with Lee about designing and building a PCB. Worked on Design documentation | 5 | 27 |

Pending Issues:

* Kyle Fischer - Atmel Studio won't recognize my MCU anymore. It recognizes Michael’s and Dan’s but not mine.
* Michael Linthicum - I am able to read registers, but it isn’t working exactly as it should. There is probably some bug with my configuration, I need to read through the datasheet more and monitor pin outputs with an oscilloscope to diagnose the problem.
* Daniel Shauger - Still working on adc, currently functions for a couple seconds and freezes
* Sam Neff - We do not have much experience designing power circuitry, and we don’t have a good estimate of the power requirements for our board. There are a large number of variables that need to be considered. Hopefully, Dr. Tuttle will be able to guide us in the right direction.
* Nick Juelsgaard - Need 2-3 more hours every day...

Comments and extended discussion

Still progressing about as much as we can hope for. The hello world programs for the buttons and joystick are close to complete, progress on SPI is being made, BLE is the slow point now. Once the buttons and the joysticks are complete we will probably add an extra person to BLE work.

Plan for coming week

* Kyle Fischer - Build a custom BLE service on the MCU. This will allow us to transfer data. Will start with transferring to phone and then to laptop.
* Michael Linthicum - Diagnose the SPI problem and get confirmation of register writes. If I can do that, I will be able to read streamed 9 degrees of freedom data and the hello world program will be close to complete.
* Daniel Shauger - make adc function reliably
* Sam Neff - Meet with Dr. Tuttle. Choose battery, voltage rails, and means of power regulation.
* Nick Juelsgaard - Build a schematic and find RLC values for components for the power circuits on both the MCU and the 9ºofFreedom.

Summary of weekly advisor meeting:

Didn’t meet this week. Talked to him the following Tuesday but we didn’t meet during the week that this report covers.