EE 491 Weekly Report 2

Date: 9-13-16 -- 9-19-16

Group Number: May1735

Project Title: Preliminary Title for Esplora Board Replacement

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:

This week we all did research and decided on a microcontroller to use for the board, laid out a list of parts and peripherals we will need, and toyed with talking to a 9 degrees of freedom sensor through SPI. We chose the MCU during our thursday meeting time; the ATSAMB11. We chose this controller due to it having SPI ports, integrated BLE, and it’s cheap. Kyle talked to Dr. Daniels and he approved our decision. Nick and Sam fleshed out a peripherals list after the thursday meeting.

Past Week Accomplishments

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Accomplishments |  | Time worked | Cumulative Time |
| Kyle Fischer | Researched processors before Thursday's meeting.  Met with Daniels about choice of ATSAMB11.  Tried to get 9 degrees of freedom sensor to work. |  | 5 | 7 |
| Michael Linthicum | Researched processors before Thursday's meeting. |  | 2 | 4 |
| Daniel Shauger | Researched processors before Thursday's meeting. |  | 2 | 4 |
| Sam Neff | Researched processors before Thursday's meeting.  Fleshed out a peripherals list after the Thursday's meeting. |  | 2.5 | 3.5 |
| Nick Juelsgaard | Researched processors before Thursday's meeting.  Fleshed out a peripherals list after the Thursday's meeting. |  | 2 | 6.5 |

Pending Issues:

* Kyle Fischer - Play with SPI on Arduino and 9 degrees of freedom sensor.
* Michael Linthicum - Play with SPI on Arduino and 9 degrees of freedom sensor.
* Daniel Shauger - Play with SPI on Arduino and 9 degrees of freedom sensor.
* Sam Neff - Create a list of peripherals with part numbers
* Nick Juelsgaard - Create a list of peripherals with part numbers.

Comments and extended discussion

We had an extremely productive team meeting and chose a much less expensive chip than we were expecting. This will hopefully drastically reduce the final cost of our board. We also came to a design change decision. We are using BLE instead of Bluetooth, as BLE seems to be supported by most commercial devices. If we end up needing Bluetooth, we will add an external chip.

Plan for coming week

* Kyle Fischer - Play with SPI on Arduino and 9 degrees of freedom sensor.
* Michael Linthicum - Play with SPI on Arduino and 9 degrees of freedom sensor.
* Daniel Shauger - Play with SPI on Arduino and 9 degrees of freedom sensor.
* Sam Neff - Create a list of peripherals with part numbers and look at bluetooth antennas.
* Nick Juelsgaard - Create a list of peripherals with part numbers and look at bluetooth antennas.

Summary of weekly advisor meeting:

Got approval from Daniels on the microcontroller we selected pending two factors. It appears that the MCU we selected doesn’t have an antenna so we may need to buy one, and that BLE might not work well enough for our use case. We should be prepared to add a bluetooth module if it comes to it. He also said that we should make sure that we have the software (Atmel Studio 7) to program the selected microcontroller before we order it. We talked about the process of ordering parts.