CPRE 491 -May20-04

CPRE 288 Embedded Systems Platform Movement and Code Optimization

Week 1 and 2 Report

September 16th – September 28th

Client: ISU 288 Dr. Jones and Rover. Matthew

Team Members:

Jacob Aspinall – Team communication leader

Geonhee Cho – Report manager

Issac Klein – Note taker

Jisoo Han – Team Git master

Sam Rai – Team web master

Nathan Nordling – Team data manager

Weekly Summary

For the first week, we decided to relearn about datasheet throughout the lab 6. We met the advisor at week 2 and get the information what and how to do this project. We set up the git repository and wrote about the issues and assigned individual work.

Past Week Accomplishments

Jacob Aspinall
Research into hardware simulation
-TI never made a simulator for the Cortex M4 processor, there is another company(Keil) that has one, but it cannot simulate the peripheral hardware(ADC,UART,etc.) so I think pure software simulation is not practical.
-Brainstormed a way to simulate just the external hardware(ir,ping,etc.) by hooking up the microcontroller to another one which sends simulated data back.

Lab7(Ping) bug fixing
-Issue where interrupts were being fired when start pulse is sent. Turns out certain combinations of turning on/off the AFSEL and PCTL registers when the timer is set up this way triggers interrupts.
-Potential issue with timer using all 24bits. Turns out the current code is using the full 24bits. The issue describes in the Errata does not affect the functionality for our lab.
-We are able to use just the TBR register to read all 24bits of the edge time result.

Lab6(ir)

-Went through lab6 with the team in order to relearn 288/reading the datasheet
-Came up with a list of requirements for lab 6 as a group

GeonHee Cho:
Research into Automate test
-DSS (Debug Server Scripting) is; TI recommends using their Debug Server Scripting, it allows to control the debugger with JavaScript. The Debug Server is the base debug engine of Code Composer Studio (CCS). It can be accessed by both DSS and the CCS IDE. It is hard to set up.

Work into Lab6(ir)
-Went through lab6 with relearn 288 and reading the datasheet. Specifically work with to assign the right values. Came up with a list of requirements for lab 6 as a group

Roomba Wheel slippage
- find a material to cover the wheels with to minimize this.

Jisoo Han:

Review for lab 6

- Review the 288 lab 6 using datasheet. And Redo setting up the ADC ports and pins.Roomba wheel slippage

– came up with idea that using some other material has more fraction or make more treads on the wheel for fraction. if fraction increases, slippage of Roomba will decrease.

Sam Rai:

- Work in group and as practice, wrote some code for IR sensor and Analog-to-Digital converter (lab-6, cpre-288).
- We spent more than three hours learning and writing the code. We also met with our advisor, Matthew, regarding about what we have done and what we will be doing next few weeks.

Issac Klein

- Reviewed the ee288 lab 6 and TM4C123GH6P data sheet to further understand the embedded system coding and testing process. Worked with GPIO and IR sensors and initializing the AC/DC converter.

Nathan Nordling

- Worked on lab 6 both in group and alone for practice, coded for IR sensor and ADC.
- Reviewed TM4C123GH6P data sheet to get more comfortable with it
- Researched issues on the git repository

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Jacob Aspinall	hardware simulation, lab7 bug fixing, lab6	14	14
Geonhee Cho	Research of DSS Auto test, lab 6	13	13
Jisoo Han	Review lab 6, research about git permission	13	13
Sam Rai	Research about IR sensor. Group worked in IR sensor from lab 6	12	12
Issac Klein	Added a head of perspective while redesigning the 288 lab 6 code with the team. Attributed to notetaking and team planning.	12	12
Nathan Nordling	Review lab 6 and datasheet, researched current code issues	12	12

Plans for Coming Week

Jacob Aspinall

-finish researching into lab7 bugs

-brainstorm tests for lab7

Geonhee Cho

-Make sure to set up DSS auto test

-Try to test for LCD.c from issue

Jisoo Han

- To work on one of issues in Gitlab which is issue 6 about the git permission.

- To make git permission between 288 lab and 488 labs.

Sam Rai

- To work on IR Sensor, averaging samples.

Issac Klein

- Work on the timer.c code to debug and test that it works properly
- Write testcases that compares actual time versus code time

Nathan Nordling

- Review lab 7
- Create spreadsheets for data compilation

Summer of weekly adviser meeting

To build the code testing; Ping, IR, Timer, UTRT, OI and find the way to test automatically for these. Suggested to work timer before do the other issues.