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CPE 580

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CPE 490 FINAL PROJECT

OBJECTIVES:

My main objective for this assignment was to modify the PA7 project to work for two tiva boards instead of just one.

MATERIALS:

* 2 copies of the PA7 template, one for each board
* Wires
* 2 TIVA-C Launchpads
* Awardspace.com
* Charmander.atwebpages.com
* Lecture 10 notes
* PuTTY
* 2 Esp8266 WiFi modules
* W3Schools php library
* PHP manual

EXPERIMENT:

I started this assignment by creating two copies of the pa7 template and storing them in two separate folders board 1 and board 2. I then wired up both of the tiva boards to the esp8266 WiFi modules. This is a diagram of the wiring. A close-up of a computer circuit

Description automatically generated

I then modified board2’s template to have different variable names for the switches and temperature to differentiate from board 1 in the POST query. I then modified the php script to have two more variables for board2’s switches and temperature. I called them Switches2 and Temperature2. I had a line in the code that corresponded to the output of the last version of the file, if there was one. If the file had no data in it, it was initialized to a blank. The reason I had this variable was so that I could replace older versions of the temperature and switch data for each of the boards. Since I had two queries, one for each board, I had to do this. I had an if statement to check if board 1’s switches and temperature variables was not null. If the data for board 1 was not null, the data was gathered for that board. I wrote a regex corresponding to the format of the data for the board and checked if the regex matched anything in the output variable. If it did, then it was replaced with the new data gathered. If there was no match, the data was concatenated with the output. There was a similar check with board 2. When I wrote to the file, I used the argument LOCK\_EX, so that nothing else could write to the file while something was being written. This is a flow chart of the php program.

A diagram of a diagram

Description automatically generated

This is the flowchart for main.cpp in the keil code.

A diagram of a computer program

Description automatically generated

CONCLUSION:

The main goal of this assignment was to modify the PA7 part 2 to work for two tiva boards. I learned a lot about php while doing this assignment. I also reviewed a lot of topics that I had experience with prior. Some of these topics were, Regex matching html and flow charts. I had a few issues completing this assignment. The main issue revolved around how I approached the problem. I used two keil projects for each board, which corresponded to two queries. Because of this, the data for board 1 and board 2 was not gathered all at the same time. I believe this caused some conflicts in writing data as two boards were trying to write data at the same time. I used the argument, LOCK\_EX, in my write output, to account for this. I also had issues with updating the new data for each board individually. However, when I kept a copy of the output, and matched a regex for the board’s data format with the output of the program, I was able to update each of the boards.