Smart Home
Meeting Thursday November 08 2012
Current progress

Dario Bosnjak

Wi-Fi & Automated Sprinkler system

So far I worked with Todd on finishing up the Wi-Fi control of power outlets and being able to control individual outlets depending on user preference. I have added the support for the 4th outlet and since we are planning on having lights controlled and plugged in to one of these outlets I will have the 4th outlet be triggered by laser beam when it's interrupted and also by the motion sensor. I will also make the 4th outlet be turned on even if the beam is not interrupted and if there is no motion detected. I have also added support to grab the information from the current sensors that are attached to the power outlets.

I had issues with software serial not being able to communicate with another arduino it would have a lot of noise and in some instances it would not work at all. This turned out to be due to fact we were not sharing common ground and it would not function correctly. This is now resolved.

Current issue I am having is when the mini server that is hosted on the arduino wishield is executed it is supposed to communicate to the arduino that is controlling the power outlets commands to turn on specific outlets and also to grab information from the current sensors. It is able to control the outlets without any issues but it does send set of 3 commands in order to execute one operation, it basically returns three sets of current information back to the server. I am still not sure why it does this exactly, I suspect that since the commands are executed the server closes the connection and then it opens it back up and at that time it send another set of instructions over software serial. This might be a bug in wifi server settings or in my code; I am currently looking in to it.

I am also currently working on the relay that will be switched on depending on the set conditions of the soil moisture and depending if its light or day.

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Christopher

Here's the latest with me:

Today, based on some preliminary HTML Dario gave me yesterday, I added code to Mirabilis to connect to the Dario's Arduino over WiFi and pull updates to the statuses from the outlets and

lighting and sprinklers and temperature sensors.

Next up is to get a working model of Levi's side of things. I'll be drawing from his schematics for this. Once his things are modeled then work on the web interface, communicating with Levi's system, and communicating with Dario's system can proceed in parallel.

I have reconnected my light sensing circuitry and verified that it is still working. Dario and I have worked today on getting it connected and represented on the Arduino server web page.

Dario informs me that in the worst case my software my not be able to hit the Arduino more than every 5 seconds, so we're preparing for that possibility by having Dario write code for his Arduino to run the lights from there if the latency is an issue with putting the lighting logic in the Python-based Mirabilis server software.

That's what's happening.

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Todd

We successfully have communication between the wifi board and the powerstrip both directions, we are able to issue commands and receive responses now. I made a big number of code changes including changes to match the wifi implementation, readability, and organizational changes. This week I will be continuing to document my design and implementation. Also, now that my processor is using more power, I think I need to beef up my power filters, I've been seeing issues when there Is a large jump in power usage. I will need to get a few different cap sizes and implement a power filter that can respond quickly, yet have enough charge to keep the board going for a bit.

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Levi

Status from Levi Balling,

About 90% of the software is complete,
I have completed the following boards.

Damper PCB, tested Cables just need to be made.

HVAC/Garage PCB, tested, It works great. It will detect a 24VAC signal It is a bit weird, it goes through the Inverter and generates a + and - 2.5 V. It is generating a square wave. So I should be able to over sample the output when it is +2.5V. The teensy 2.0++ is capable of recognizing voltages above 1.5V. So it should still indicate that it is high.

Main Controller PCB, tested, ICs are working great, may need to make 1 or 2 modifications to make it work better.

Power Board PCB, Tested months ago, i changed a couple of things that the voltages went to. It is working great, and the cables are made for it.

Bi-Polar Stepper Motor Driver, currently I have my stepper motor driver in the mail. I also have several backup ICs for in case I fry the chip again.

Sprinkler Board, tested. This will work great.

Temperature Sensor PCB, tested, works better than I thought.

The Epic Cube is nearing completion, hope to be done with this by the weekend, and then I'll be able to work with chris to integrate all of the communications over the usb serial port.

I will also be making cables tonight and this weekend.

Software

I have generated a PWM signal for the fans. I just need to integrate it into my software.

I have placed the wireless communications controller, and Mic mixer and speaker mixer on the back burner till I finish what is required.

I've nearly completed the testing of all the software outputs. I will still need to connect the controller to the main board the it should be done.