Using Technology to Measure Adherence of Complicated Medication Regimens

Progress Report 11

Client
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Problem Statement
According to a recent study, almost 75% of patients, especially the elderly, do not adhere to their medication regimens for various reasons. This lack of adherence can prevent a patient’s recovery. Additionally, the present state of affairs is such that if a patient reports no improvement, a physician does not definitively know whether to try a different medication or whether the patient is simply not taking the medication regularly. To improve general health of patients assigned complicated medication regimens, we are to make a device that keeps a record of when a patient takes their medication.

Summary of Team Accomplishments
- Formed team and assigned individual roles
- Met with client and obtained project supplies
- Formulated problem statement
- Brainstormed possible designs
- Compile team members’ parts of the PDS and edit
- Create project website
- Meet with Professor Morrow to discuss possible solutions
- Research processors
- Obtained a microcontroller and corresponding development kit
- Narrowing down designs and design specifics
- Figured out concept of a switch matrix
- Work on mid-semester presentation
• Research specifics about a switch matrix
• Research various switches that could be used
• Ordered switches/buttons
• Figured out how to use pins P3, P4, P5 and P6
• Purchased several pill boxes.
• Build and test a sample circuit with the micro controller
• How to use the in built clock on the microcontroller

Current Week’s Goals

• Research
• Overcome microcontroller problems
• Integrate switches and circuit into a pill box
• Begin working on final paper
• Begin working on poster

Project Schedule/Important Dates

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Current Difficulties

- How to use pins P1.1 – P1.7, P2.1 – P2.7, P3.1 – P3.7, P4.1 – P4.7, P5.1 – P5.7, P6.1 – P6.7 on the microcontroller
  - Currently we can only pins P1.0, P2.0, P3.0, P4.0, P5.0, P6.0
- How to output files from the microcontroller onto a computer.

Activities

**Sujan**

- Class Meeting: 1.5 hrs
- Group Meeting: 3 hrs
- Meeting with Rohit (Grad Student): .5 hr
  - **Total**: 5 hrs

**Cara**

- Class Meeting: 1.5 hrs
- BSAC: .75 hrs
- Radio Shack: 2 hrs
- Team Meeting: 3 hrs
- Research: .75 hrs
  - **Total**: 8 hrs

**Farshad**

- Class Meeting: 1.5 hrs
- Radio Shack: 2 hrs
- Research: 1 hr
- Meeting with Craig (Viasys): .5 hr
- Team Meeting: 3 hrs
- Construction: 1 hr
- Notebook and Web update: .25 hr
- Meeting with Ben (Viasys): 1.5 hrs
  - **Total**: 10.75 hrs

**Nipun**

- Research: 2 hrs
- Radio Shack: 2 hrs
- Microcontroller: 2 hrs
- Meeting with Craig (at Viasys): 1.5 hrs
- Group Meeting: 3 hrs
- Meeting with Rohit (Grad Student): .5 hrs
- Talking to Nick (5th year in Comp Engr): .5 hr
Progress report 0.25 hr

Total: 11.75 hrs

Team Total Hours for this Week: 35.5 hrs
Cumulative Team Hours to Date: 220.25 hrs

Expenses:
- 2 Pill Boxes $2.11
- 4 Pill Boxes $9.90
- 1 AAA Battery Holder $0.99
- 1 AA Battery Holder $0.99
- Resistors $1.98
- PC Board $4.29
- 5 Switches $13.45
- 12 Switches $14.81

Total: $48.52