Using Technology to Measure Adherence of Complicated Medication Regimens

Progress Report 14

Client
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Advisor
Professor William L. Murphy Ph.D

Team Members
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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
- Overcome microcontroller problems
- Print poster
- Integrate switches and circuit into a pill box
- Finish final paper

**Current Week’s Goals**
- Final meeting with Professor Murphy
- Final meeting with Dr. Juergens

**Project Schedule/Important Dates**

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Current Difficulties

● None

Activities

Sujan
Prototype Work and Poster 12.5 hrs
Final Paper 5 hrs
Notebook 5 hrs
Communications 0.5 hrs
Total: 23 hrs

Cara
Prototype Work 8.5 hrs
Presentation 2 hrs
Final paper writing and editing 10 hrs
Peer/self evaluation 1 hr
Total: 23.5 hrs

Farshad
Prototype Work 12 hrs
Presentation 2 hrs
Thoughts about next semester 1 hr
Notebook 7 hrs
Final Paper 3 hrs
Website 0.5 hr
Total: 26.5 hrs

Nipun
Prototype Work and Poster 12.5 hrs
Presentation 2 hrs
Final Paper 5 hrs
Notebook 5 hrs
Progress report 0.25 hr
Total: 24.75 hrs

Team Total Hours for this Week: 97.75 hrs
Cumulative Team Hours to Date: 434.75 hrs

Expenses: (approximate values)
- 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
- Bread Board Wires $6.64
- Spray Paint $3.12
- Screws $2.00
- Plexiglas $3.69
- 2 Pill Boxes $10.56
- 25 Switches $55.64
- PC Board $4.29
- Bread Board Wires $4.29

**Total**: $138.75