Using Technology to Measure Adherence of Complicated Medication Regimens

Progress Report 12

Client
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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
• 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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<th>Sep 08</th>
<th>Sep 15</th>
<th>Sep 22</th>
<th>Sep 29</th>
<th>Oct 06</th>
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<td>Brainstorm designs</td>
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Current Difficulties

- How to use pins P1.1 – P1.7, P2.1 – 2.7, 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

Activities

Sujan
Team Meeting: 2.5 hrs
Total: 2.5 hrs

Cara
Paper: 1.5 hrs
Home Depot: 1 hr
Team Meeting: 1.5 hrs
Total: 4 hrs

Farshad
Shopping: 1.5 hrs
Paper: 2 hrs
Notebook: .25 hr
Team Meeting: 3 hrs
Total: 6.75 hrs

Nipun
Microcontroller Research: 1.75 hrs
Retreiving laptop: .25 hrs
Meeting with Prof Murphy: .25 hrs
Meeting with Prof Morrow: 1 hr
Team Meeting: 5 hrs
Progress report: 0.25 hr
Total: 8.5 hrs

Team Total Hours for this Week: 21.75 hrs
Cumulative Team Hours to Date: 242 hrs

Expenses:
- 2 Pill Boxes: $2.11
- 4 Pill Boxes: $9.90
- 1 AAA Battery Holder: $0.99
<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
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<tr>
<td>1 AA Battery Holder</td>
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<tr>
<td>Resistors</td>
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<tr>
<td>PC Board</td>
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<td>5 Switches</td>
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<td>12 Switches</td>
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<tr>
<td>Bread Board Wires</td>
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**Total:** $55.16