Using Technology to Measure Adherence of Complicated Medication Regimens

Progress Report 15

Client
Timothy Juergens, M.D.
UW/VA Hospitals
Geriatric psychiatrist/sleep specialist
Phone: 239-3030
timothy.juergens@med.va.gov

Advisor
Professor William L. Murphy Ph.D

Team Members
Sujan Bhacheetharan (Communications)  sbhaheethara@wisc.edu
Cara Dunn (BSAC)  cddunn@wisc.edu
Farshad Fahimi (BWIG)  ffahimi@wisc.edu
Nipun Yamdagni (Leader)  nyamdagni@wisc.edu

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
• Final meeting with Professor Murphy
• Final meeting with Dr. Juergens

Project Schedule/Important Dates

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Meeting (Dec 15)

Current Difficulties
- None

Activities

Sujan
- Final Meetings: 1.5 hrs
- Communications: .5 hr
  Total: 2 hrs

Cara
- Final Meetings: 1.5 hrs
  Total: 1.5 hrs

Farshad
- Final Meetings: 1.5 hrs
- Self/Peer Evaluations: 2 hrs
- Website Update: .25 hr
  Total: 3.75 hrs

Nipun
- Final Meetings: 1.5 hrs
- Self/Peer Evaluations: 2 hrs
- Progress report: 0.25 hr
  Total: 3.75 hrs

Team Total Hours for this Week: 11 hrs
Cumulative Team Hours to Date: 445.75 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