Using Technology to Measure Adherence of Complicated Medication Regimens

Progress Report 12

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.

Project Schedule/Important Dates
March 9th Midsemester Presentation
May 4th Poster Presentation
May 9th Final Papers Due

Summary of Team Accomplishments
- Finished mid semester presentations
- Created computer interface
- Found prospective solutions for wiring all the switching
- Found a way to access time from the watch chip
- Found a way to get the microcontroller to sleep, and wake up from sleep using interrupts
- Were able to store time of when a button was pushed
- Completed outreach requirement
- Researched methods to wire the pill box to the circuit
- Researched methods to use the visual basic to interact with the microcontroller
- Attached ribbon cables to most of the pill box
• Programming of the microcontroller and its computer interface is nearly completed
• Design of the printed circuit board in underway

Current Difficulties
• We need more switches for the pill box.

Activities
Sujan
Pill Box Wiring  3 hr
Client Meeting  1 hr
Communications  0.5 hr
Total: 3.5 hrs
Cara
Pill Box Wiring  3.5 hr
Total: 3.5 hrs
Farshad
Client Meeting  1 hr
Web update  0.25 hr
Circuit Schematic Work  3 hrs
Express PCB Work  3 hrs
Meeting with David  2 hrs
Communication with Ben Y and Ashley  0.25 hr
Total: 9 hrs
Nipun
Client Meeting  1 hr
Meeting with David  2 hrs
Radio Shak  0.5 hr
Strategy for Wiring  1 hr
Meeting with David  1.5 hrs
Communications with Dr Juergens  0.25 hr
Meeting with David  1 hr
Working on programming microcontroller & comp interface  16.75 hrs
Progress report  0.25 hr
Total: 24.25 hrs

Team Total Hours for this Week:  40.25 hrs
Cumulative Team Hours this semester:  240 hrs
Cumulative Team Hours to Date:  685.25 hrs

Expenses
• Microcontroller (PIC18F4685-I/P-ND) $027.44
• Watch chip (DS1307) $017.58
• USB to serial (TTL) interface (DLP-USB232M) $031.47
• Plexiglas $004.21
• Microcontroller (PIC18F4550) $030.50
• Pill box $004.16
• Wires $006.32
• Piezo Electric Buzzers ~$008.00
• Diodes and Ribbon Cables * $18.50
Total: ~$149.18

* Dr Jeurgens has made the payment for these components directly.