

Using Technology to Measure Adherence of Complicated Medication Regimens

Progress Report 14

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 wlmurphy@wisc.edu

Team Members

Sujan Bhaheetharan	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.

Project Schedule/Important Dates

March 9 th	Midsemester Presentation
May 4 th	Poster Presentation
May 9 th	Final Papers Due

Summary of Team Accomplishments

- Poster Presentation is complete
- Final paper is complete

Current Difficulties

- The switch matrix still needs some troubleshooting. The possible sources of error are in the ribbon cables, the soldering of the switches and the design of the printed circuit board.

Activities

Sujan

Construction	6 hrs
Final Paper	3 hrs
Notebook	0.5 hr
Poster Presentation	3.5 hrs
Total:	13 hrs

Cara

Construction	9 hrs
Poster Presentation	3.5 hrs
Final Paper	11 hrs
Total:	23.5 hrs

Farshad

Circuit	11 hrs
Report	6 hrs
Notebook	6 hrs
Notebook Update	0.5 hrs
Peer Evaluation	1 hr
Poster Presentation	3.5 hrs
Total:	28 hrs

Nipun

Programming	9 hrs
Meeting with David	1 hr
Poster Presentation	3.5 hrs
Final Paper	8 hrs
Notebook	2 hrs
Peer Evaluations	1 hr
Progress report	0.25 hr
Total:	24.75 hrs

Team Total Hours for this Week:	89.25 hrs
Cumulative Team Hours this semester:	358.75 hrs
Cumulative Team Hours to Date:	804 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	\$009.05
• Diodes and Ribbon Cables *	\$018.50
• Wire	\$006.32
• Construction supplies	\$038.35
• Switches	\$027.12
• Printed circuit board	\$125.90
Total:	\$346.92

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