

Liquid Controller

Client: *Ian Bird, Ph.D*

Team Members:

Steve Welch (Leader)

Joe Decker (Communications)

Justin Gearing (BSAC)

Dan Miller (BWIG)

11/7/08 – 11/13/08

Problem Statement:

Currently, reagents are added manually when testing cell signal functioning under a microscope. This leads to problems regarding accuracy of timing and amount. To resolve this issue, an automatic system is desired. This system will use pumps controlled by a computer interface to precisely deliver required reagents.

Last Week's Goals

- Steve: Finish program, test with interface to ensure compatibility, assemble electrical components together
- Joe, Dan, Justin: completely assemble valve panel AND case with proper holes
- Test valves for resistance, exact opening/closing voltages, find power loadings
- Test power relay for proper function
- Fasten components to inside of case

Summary of Accomplishments

- Programming continued, needs final touches and testing with interface
- Valves, power relay, power supply and LabJack all tested for proper output/input voltages and resistances

This Week's Goals

- Completely finish design
- Begin testing phase: create work-up of specific tests to run and how to implement these tests

Project Difficulties

- Still cannot find a way to save front panel settings as a file for easy templates.
- Printing exact on/off times to file

Activities

Name	This Week
Joe Decker	Component machining, 2.5 hr
Justin Gearing	Case modeling, 2.5 hr Component machining, 2.5 hr
Dan Miller	Shop Permit Acquisition, 1 hr Case modeling, 1 hr Component machining, 2.5 hr
Steve Welch	LabVIEW programming, 3 hr Component testing, 1.5 hr
Team	Team meeting, 1 hr
	Cumulative (Hr)
Joe Decker	10.5
Justin Gearing	15.5
Dan Miller	17.5
Steve Welch	29.5
Team	17.0
Total	90.0

Expenses

Item	Part #	Source	Qty	\$/unit	\$
NC Two-way isolation valve	161T011	www.nresearch.com	7	60.85	425.95
NO Two-way isolation valve	161T021	www.nresearch.com	1	73.05	73.05
NI Power Relay Board	SC-2062	www.ni.com	1	63.00*	63.00*
LabJack Interface	U12	www.labjack.com	1	129.00	129.00
Aluminum Panel 1/8"x4"x12"	9041K12	www.mcmaster.com	1	8.67	13.17*
Pipe Clamp	30285T35	www.mcmaster.com	2	10.00	20.00
Thumb Screw Pack	90181A595	www.mcmaster.com	1	6.37	10.87*
12V 1.5A AC/DC Adaptor	2731665	RadioShack	1	22.99	22.99
Electrical Tape	6402375	RadioShack	1	3.99	3.99
90' 22-Gauge Stranded Hook-Up Wire	2781218	RadioShack	2	5.99	11.98
CB25 Terminal Board	CB25	www.labjack.com	1	39.00	39.00
Total (*Includes Shipping and Handling)					813.00

