

Liquid Controller

Client: *Ian Bird, Ph.D; Bikash Pattnaik, Ph.D*

Team Members:

Steve Welch (Leader)

Joe Decker (Communications)

Justin Gearing (BSAC)

Dan Miller (BWIG)

11/28/08 – 12/4/08

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

- Program possibly needs rearrangement to provide faster processing speed, eliminating sputter
- Test for timing accuracy using oscilloscope
- Prepare for poster presentation: Friday, December 5th

Summary of Accomplishments

- Program finalized
- Timing accuracy tested with oscilloscope
- Poster currently being printed

This Week's Goals

- Poster Presentation tomorrow (Fri, Dec 5), 12:00 @ ECB
- Write final report (Due next Friday, Dec 12)
- Meet with client, deliver product and demonstrate operational use

Project Difficulties

- During testing, valves rapidly turned on/off for brief period of time, then went back to normal operational behavior. Traced back to LabJack interface using oscilloscope, may be a problem with LabJack or its interface to computer. Hard to determine causes since this problem has not yet resurfaced.

Activities

Name	This Week
Joe Decker	Presentation making, 13 hr Testing, 2 hr
Justin Gearing	Presentation making, 3 hr Testing, 2 hr SolidWorks modeling, 1.5 hr
Dan Miller	Presentation making, 3 hr SolidWorks modeling, 1 hr
Steve Welch	Presentation making, 5 hr Testing, 2 hr LabVIEW programming, 10 hr
Team	Presentation making, testing (see individual times)
	Cumulative (Hr)
Joe Decker	25.5
Justin Gearing	22.0
Dan Miller	21.5
Steve Welch	48.5
Team	27.0
Total	144.5

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
Weekendercase	629	www.plasticase.com	1	49.50	*58.68
#4-40 x 3/4" machine round head bolts	27461	Home Depot	2	0.98	1.96
Velcro	-	Home Depot	1	2.49	2.49
Rubber stoppers (22mm x 9mm)	-	Home Depot	1	1	2.49
Total (*Includes Shipping and Handling)					878.62

