

## **Liquid Controller**

Client: *Ian Bird, Ph.D*

Team Members:

*Steve Welch (Leader)*

*Joe Decker (Communications)*

*Justin Gearing (BSAC)*

*Dan Miller (BWIG)*

11/21/08 – 11/27/08

### **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**

- Finish testing phase
- Work out remaining kinks found from testing
- Begin presentation preparation

### **Summary of Accomplishments**

- Design finished
- Preliminary test conducted – valves “sputtered” on/off rapidly

### **This 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

### **Project Difficulties**

- Increasing program efficiency, runs too slow to provide continuous streaming output to power relay

### Activities

Name	This Week
Joe Decker	-
Justin Gearing	-
Dan Miller	-
Steve Welch	-
Team	Prototype Construction, 9 hr
	Cumulative (Hr)
Joe Decker	10.5
Justin Gearing	15.5
Dan Miller	17.5
Steve Welch	31.5
Team	27.0
<b>Total</b>	<b>102.0</b>

### 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
<b>Total (*Includes Shipping and Handling)</b>					<b>878.62</b>

