Familiarizing with the Elegoo board and Arduino Assembly Programming

1. Purpose

- Familiarize with the Elegoo board and Atmega328 uController
- Familiarize with Arduino IDE
- Learn how to call assembly using Arduino IDE
- Learn how control pins through registers using assembly language

2. Task

- Make program and use Elegoo board to flash LEDs following the sequence indicated by TA;
- Hardware connection is the same as the example of Week2 lecture, i.e., 4 LEDs (LED1, LED2, LED2, LED4) are connected to I/O port D's connection pin of 1, 3, 5, 7 respectively.
- Each step, only one LED is on, the rest LEDS are off;
- Once running the program, all steps are completed.

Step	1st	2nd	3rd	4th
LED				
Time (msec)				
Section/group numbers				
Did the group finish this lab?			YES/NO	
TA Signature				

3. Reference documents

- Week 1 and Week 2 Lecture notes
- ATmega 328 datasheet
- I/0 Port D address – DDRD is 0x0A, PortD is 0x0B

4. Procedure

- Familiarize with the Elegoo board.
- Make program to accomplish the task.
- Once it is working properly, demonstrate to your TA and ask him/her to sign off.

5. Lab Report

- Signed lab report cover page: http://www.ryerson.ca/mie/documents/
  - *(make sure you put your lab group number/section number on the front)*
- Abstract, Introduction
- Experimental Equipment (e.g., what components from your kit and what connection pins of the Elegoo board were used)
- Description of the Program with flowchart.
- Conclusions & Recommendations
- Appendix: Assembly and C Program listing,
- This sheet with the TA's signature. Print this sheet and bring it to the lab room.

Note:

- *Lab reports are due in 1 week, please hand in to your TA at the start of the next lab!*
- ***Each group needs to print this page and bring it to the lab.***