Homework #7 – Due 3/4/20
Please submit in the Dropbox in MyCourses

Problems:

1. In this homework you will be controlling the movement of the servo motor using the Gyroscope from lab. You may use the library functions for the MPU6050 that were used in lab.

- You should already have code that initializes the gyroscope and calculates pitch, roll and yaw. Start with that code.

- You should also have code that controls the servo motor with timer1. However, in this program you will not be updating the servo on a timed interrupt.

- Use the yaw angle from the lab code to control the angle of the servo. Upon initialization, the servo should be at 0 degrees (pulsewith of 1.5 ms). The servo should follow the yaw of the gyroscope from -90 to 90 degrees.

*remember, the angle of the servo is controlled by the pulse width – look at the data sheet in the PWM guide or read up on servo motors online.

2. Write the instructions necessary to initialize the ATmega328 for I^2C fast mode to write 0xF0 to register 0xAA in a peripheral at address 0b1001101. You may use the functions developed in class.

3. Write the instructions necessary to initialize the ATmega328 for I^2C standard mode to read 4 bytes of data from register 0x0F in a peripheral at address 0b1100100. You may use the functions developed in class. Each byte of data read should be stored in a different variable.