Lab 2 Report: Motor Control Using PWM

Lab Goals:

* Configure GPIO pin(s) as a PWM peripheral
* Configure a PWM peripheral
* Develop a driver that enables software to control the direction and speed of the robot

Steps to Accomplish Goals:

1. Configure the pins connected to PB4, PB5, PE4, and PE5 as PWM in the alternate function register and port control register (PWM signals: AIN1, AIN2, BIN1, and BIN2)
2. Make sure the port control mappings correspond to the ones given:
   1. PB4 <- M0PWM2
   2. PB5 <- M0PWM3
   3. PE4 <- M1PWM2
   4. PE5 <- M1PWM3
3. Configure the pins connected to PF2 and PF3 as digital input and output (PF3 is connected to the nSLEEP pin)
4. Write a routine that configures the PWM peripheral (Look at the given interface)
5. Complete the driver development functions provided

Problems Faced:

* One of the problems that we faced was thinking on what duty cycle to use
* The first attempt at implementing the directional functions only worked in isolation. If you ran more than one at a time, one of them would overload and the other one would act under powered. This was a result of not using the definitions given in drv8833.c

Ready Reference:

* Registers to configure PWM signal:

PWM0 -> \_0\_LOAD

PWM0 -> \_0\_CMPA

PWM0 -> \_0\_GENA

PWM0 -> \_0\_CTL

PWM0 -> ENABLE

* Look at the datasheet drv8833.pdf given on (<https://ay14-15.moodle.wisc.edu/prod/mod/folder/view.php?id=108529>)