Lab 1 Report: Digital and Analog Inputs

Lab Goals:

* Get the robot sensors to work correctly.
* Read and interpret the value of an analog input pin using an oscilloscope.

Steps to Accomplish Goals:

1. Enable the SysTick timer to generate interrupts every 50uS and use interrupt to create a signal every 10ms.
2. Configure the GPIO pin connected to SONAR\_PW as a digital input and translate the pulse width into a distance (J7 right facing sensor)
3. Configure the GPIO pin connected to SONAR\_AN as an analog input. This will require configuration of ADC0 (J11 center sensor)
4. Configure the GPIO pin connected to TIVA\_SONAR\_TX and TIVA\_SONAR\_RX as digital pins and alternate function behavior corresponding to UART (J8 left facing sensor)

Problems Faced:

* We had problems getting the correct values for the left sensor otherwise everything else was done quite early.
* We kept getting no value or the wrong values until, with the help of others, we figured out we needed to avoid polling at when ‘R’ and 0x0d arises.

Ready Reference:

* Readings can occur up to every 50uS
* TIVA\_SONAR\_RX (1 << 0) TIVA\_SONAR\_TX (1 << 1)
* SONAR\_PW (1 << 2) SONAR\_AN (1 << 3)