

Lab 5: Sensors and Analog to Digital Conversion (ADC)

Objectives:

1. Experiment with a light sensor as an input device.
2. Run a calibration routine that detects minimum and maximum values.
3. Use Putty to create a serial connection to gather and save the collected data to a text file

Required Equipment:

- Computer with Arduino IDE & Teensy extensions installed and working
- Putty
- Teensy board and USB cable
- Photoresistor
- A variety of resistors

References and Resources:

- Calibration tutorial: <http://arduino.cc/en/Tutorial/Calibration>
- Parts List-Explanations file with part numbers, for referencing data sheets

Basic Photoresistor Setup

1. Install the photo resistor in a voltage divider configuration.
2. Connect the output of the voltage divider circuit to a teensy pin that is capable of analog input.
3. Code an appropriate formula that converts the raw ADC data into an equivalent voltage.
4. Use the serial monitor that comes with the Arduino IDE to verify correct output.
5. Use putty to open a serial port connection and save at least ten samples to a text file.
6. Demonstrate your working circuit.

Bonus:

Send the text file to macisac@algonquincollege.com using only the USB keyboard and mouse functionality – here is a tutorial https://www.pjrc.com/teensy/td_keyboard.html