

HON312: Sensor project 1 (due Tue. Feb. 28th).

Build (individually or as a group) a sensor of your choice on a breadboard from electrical components that can sense something about the environment. The sensor will be powered with a 9V battery. A multi meter (measuring resistance, current or voltage) will be used to measure the response to environment.

Calibrate the sensor against a 'standard' (that is a calibrated sensor or some other known quantity) over a reasonable range of environmentally relevant values. Derive a calibration equation and assess likely uncertainty of sensor (e.g. +/- 2degrees).

Together with the instructor test your sensor and assess how well the sensor performed.

Grading: late submissions, 10pts down + 5 for every extra day.

Rubric:

A	Sensor works, calibrated well and performs well in test (A- if minor details missing).
B	Sensor works, calibrated well but fails in test.
C	Sensor works, did not calibrate well and fails in test.
D	Sensor seems to respond to the environment but it is not obvious what the sensor is doing.
E	Some components are attached but no output is measurable.
F	No homework turned in.

See lab resources regarding different types of sensors.

Basic electronics resources:

Suggested reading:

Physical Computing: Sensing and Controlling the Physical World with Computers, *Dan O'Sullivan and Tom Igoe*, 2004, Thomson Course Technology PTR; ISBN: 159200346X

http://tigoe.net/pcomp/basic_elec.shtml

http://www.owlnet.rice.edu/~elec201/Book/basic_elec.html

Student guide to Elenco (in the lab).