SMART SENSORS

Sequence of activities

Day 1: January 4, 2020 10am – 1pm

Activity 1: Evading Motion Detection

a. Explore motion detectors and determine their area of effectiveness. (page 1)
b. Experiments - what the motion detector can detect and what it cannot detect.

Activity 2: Taking a Tour for Some Sensors

a. Explore other smart sensors – introduce smart sensors and use human reaction to a stimulus. (page 4)

Activity 3: Making a Microphone

a. Making a microphone. An intro to the PVDF film (using the portable speaker/amplifier.) (page 12)
b. Explore electric charge by using the electroscope (not in book.)

Day 2: January 11, 2020 10am – 1pm

Activty 0: MyDAQ Intro

a. Introduction to MyDAQ and LabView
b. Piezo microphone

Day 3: January 25, 2020 10am – 1pm

Activity 4: Exploring the Piezo Effect

a. Introduction to polar molecules and the chemical structure model of PVDF film. (page 16)
b. Create models of PVDF (page 19)
c. Bending stress effects on PVDF file (page 22) (Piezo-test.vi)

Day 4: February 1, 2020 10am – 1pm

Activity 5: Measuring the Piezoelectric Response

a. Measuring the response from dropping and rolling the balls on different substrates (page 28.)
b. Pyroelectric response (page 32)
c. Prepare for the design challenge.

Day 5: February 8, 2020 10am – 1pm

Design Project - Coin Counter (page 38.)

Day 6: February 15, 2020 10am – Noon

Showcase Coin Counter Designs

Post-Test and Survey

PTC Presentation