Intro to Sensors Outline, Class 2

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- Introduction (15 minutes)
  - orientation to handout
  - brief review of Class 1
- BJT Power Amp (30 minutes)
  - rules transistors follow in circuits
    1. $V_E = V_B$ - 0.6V
    2. I_{CE} = h * I_{BE} (h ˜ 100)
  - Review: voltage follower circuit
  - Activity: current source circuit
- Input Conditioning (10 minutes)
  - read the documentation for I-V curves
  - Concept: think about the range of inputs you're going to get (e.g. temperature), and outputs you want (what are you driving?)
- Op-Amps (55 minutes)
  - how to insert DIP components into breadboards
  - Concept: open-loop vs. closed-loop configuration
    Op-amp multiplies the difference between its inputs. But we never use them open-loop.u
  - Activity: tuning gain with resistors
  - Activity: comparator to subtract constant voltage
  - Concept: why build these complex circuits?
- Wrap-up (10 minutes)