

SP.764, Practical Electronics  
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**Lecture 9: Final Project Concepts**

**Topics:**

- 1) Concepts
  - Generate concepts
  - Explore concepts
  - Select concepts
- 2) Plan & Begin Design

**Concepts:**

- I. Temperature-controlled fan, w/ readout
  - a. Sense temperature
    - i. Thermistor
  - b. Display temperature
    - i. LEDs
    - ii. Comparator
  - c. Control speed of motor w/ PWM
    - i. Transistor
    - ii. 555
- II. "Color Organ"
  - a. Pick up sound
    - i. Microphone
    - ii. Amplifier
    - iii. Filter
  - b. Sense volume (Extract envelope)
    - i. Rectifier
    - ii. Low-pass Filter
  - c. Sense freq. band & volume in that band
  - d. Light LED bar

### III. Sunflower

- a. Sense light
  - i. Photocells
- b. Compare intensity
  - i. Comparator
- c. Actuator
  - i. Solenoids
  - ii. Motor
- d. Motor needs to stop! (Implement "dead-band")