Video:01

Key concepts: Using multimeter for measuring resistance, voltage and current.

- **Resistance:**
  At first select (Ω) ohm sign. Then stick two probes in the right sockets. Black probe always common socket and red probe only change for measuring current. Now measure by connecting the two probes to the both sides of the resistor. But it fails for built circuit because current choose the way of least resistance.
- **Voltage:**
  Select DC (⎓). Then connect the red probe into the positive site and black probe into the negative site of the battery (power source).
- **Current:**
  Select DC (⎓). Stick the red probe in the 10 amp socket (always start with high current). Connect the probes to the opening point of the circuit so that the current will flow through multimeter.

Components used: Multimeter, Resistance, Battery, Probe, LED Light etc.

Video:02

Key concepts: Dimming all kinds of LEDs by using Arduino.

- We can increase brightness of LED by increase the voltage. But if the voltage is very high the LED will broken out and if the voltage is very low the LED will stop.
- To solve this problem we use Arduino for dimming the LED in fixed voltage.

Components used: LED, Arduino.

Video:03

Key concepts: How to program microcontroller using Arduino software and Arduino uno as a programmer.

- Download Arduino software.
- Download the board data for the Attiny.
- Attiny 85 IC has 8 pins.
  - Pin 1: reset
  - Pin 2: IO 3 (Analog input 2)
  - Pin 3: IO 4 (Analog input 3)
  - Pin 4: Ground
  - Pin 5: IO 0 (PWM)
  - Pin 6: IO 1(PWM)
  - Pin 7: IO 2(Analog input 1)
  - Pin 8: Vcc
- Wiring of the Arduino:
  - Arduino pin 13 to Attiny IO 2
  - Arduino pin 12 to Attiny IO 1
  - Arduino pin 11 to Attiny IO 0
  - Arduino pin 10 to Attiny reset pin 1
  - 5V to Vcc
  - Ground to Ground

    - Put 10 microfarad capacitor between the reset pin of the Arduino and ground
- Upload the code.

Components used: Arduino, Attiny 85 IC, LED