
Controlling LED with IR Remote and Arduino Uno

Objective:
Turn an LED on or off using buttons from a standard IR remote control.

Components Required:

- Arduino Uno
- IR Receiver Module (e.g., TSOP1738 or HX1838)
- IR Remote (TV/DVD remote)
- 1 LED
- 1 Resistor (220Ω–330Ω)
- Jumper wires & breadboard

Circuit Overview:

- **IR Receiver** has 3 pins:
    - **VCC** → 5V on Arduino
    - **GND** → GND on Arduino
    - **OUT** → Digital pin (e.g., D11)
- **LED** is connected to another digital pin (e.g., D3) through a current-limiting resistor, and the cathode is grounded.

Working Principle:

- When a button on the IR remote is pressed, it sends out modulated infrared signals.
- The **IR receiver** detects these signals and sends the corresponding digital data to the Arduino.
- The Arduino decodes the signal and performs an action — such as turning the LED on or off based on the button pressed.

Use Cases:

- Remote-controlled lighting systems
- Home automation projects

- DIY electronic appliances control
