Project 2
Wireless Lighting System

Project Description

- This project aims at designing and implementing a Wireless Lighting System by which an LED (or bulb) is being controlled using an IR remote.
- The project uses the IR receiver to demodulate or decode the IR signals from the IR remote, the signals (keys) are then printed on the serial monitor to show the pressed key.

Components involved

- Arduino UNO R3 Board
- IR remote
- IR Receiver sensor
- Jumpers and connecting wires
- LED
- Breadboard (for prototyping)
- Resistor

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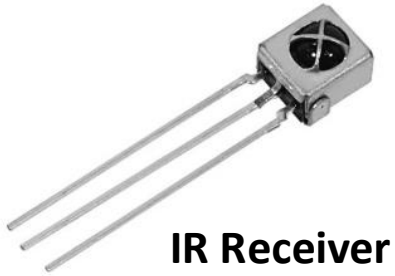


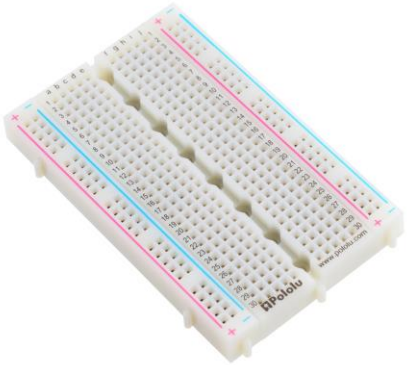
IR Receiver sensor

Arduino UNO R3 board

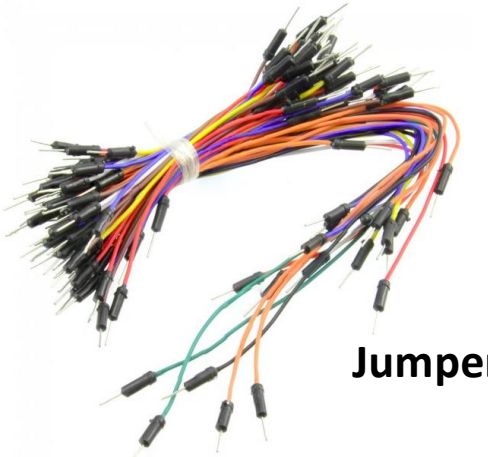
220 ohms

IR Remote

Light Emitting Diode (LED)



Breadboard

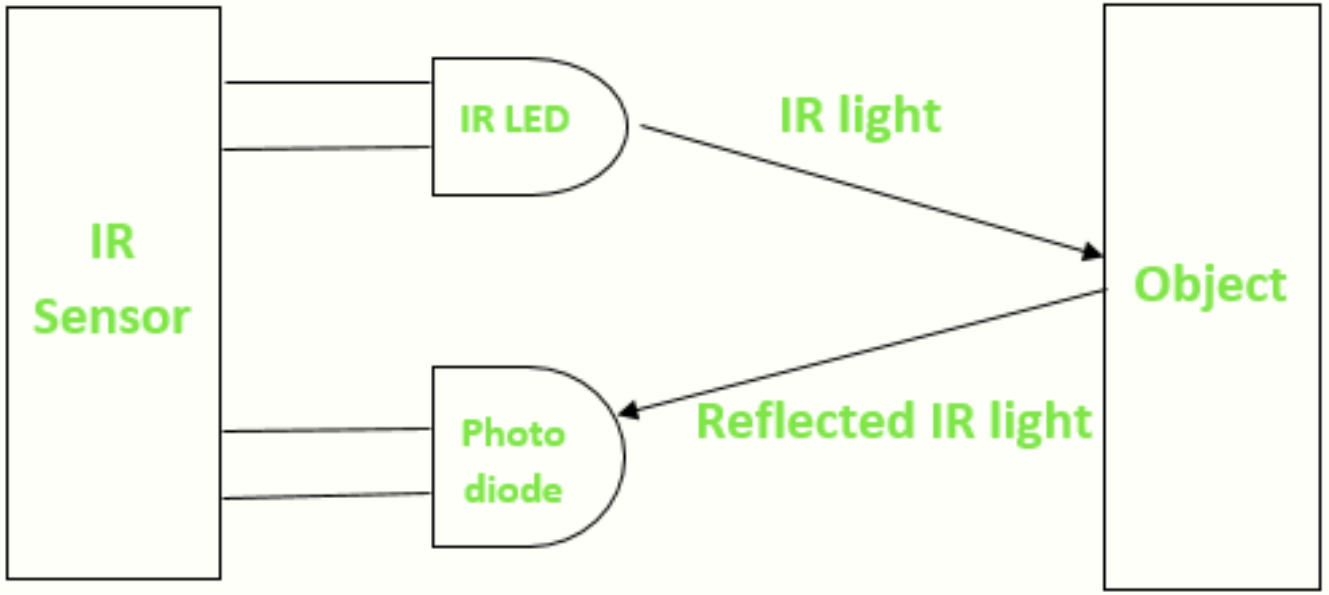


Jumpers

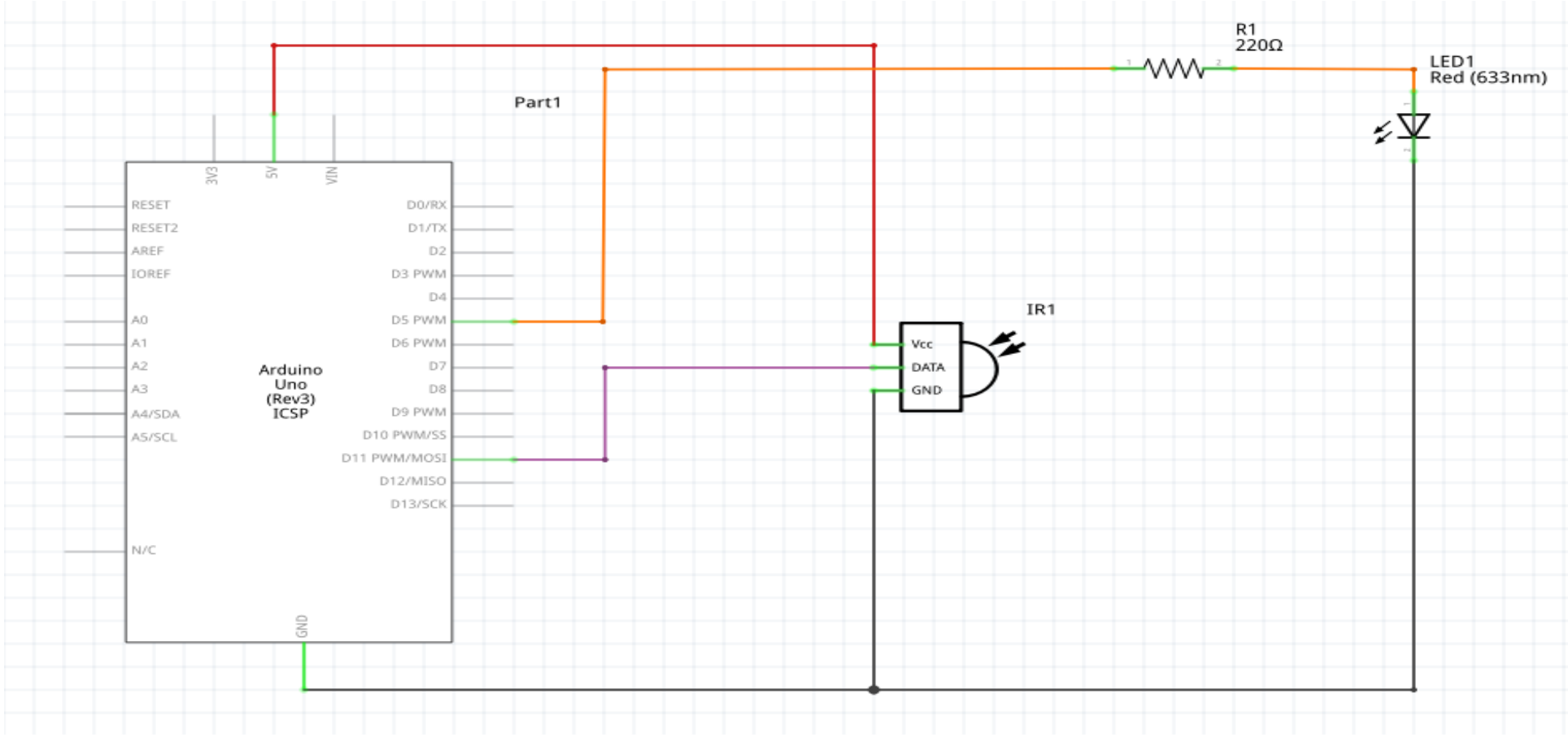
Working Principle of IR Receiver Sensor

- IR Receiver is also called a photodiode.
- The emitter is an IR LED and the detector is an IR photodiode.
- The IR photodiode is sensitive to the IR light emitted by an IR LED. The photodiode's resistance and output voltage change in proportion to the IR light received.
- IR receivers are specially filtered for IR light, they are not good at detecting visible light.
- They have a demodulator that looks for modulated IR at 38kHz. Just shining an IR LED won't be detected, it has to be PWM blinking at 38kHZ.

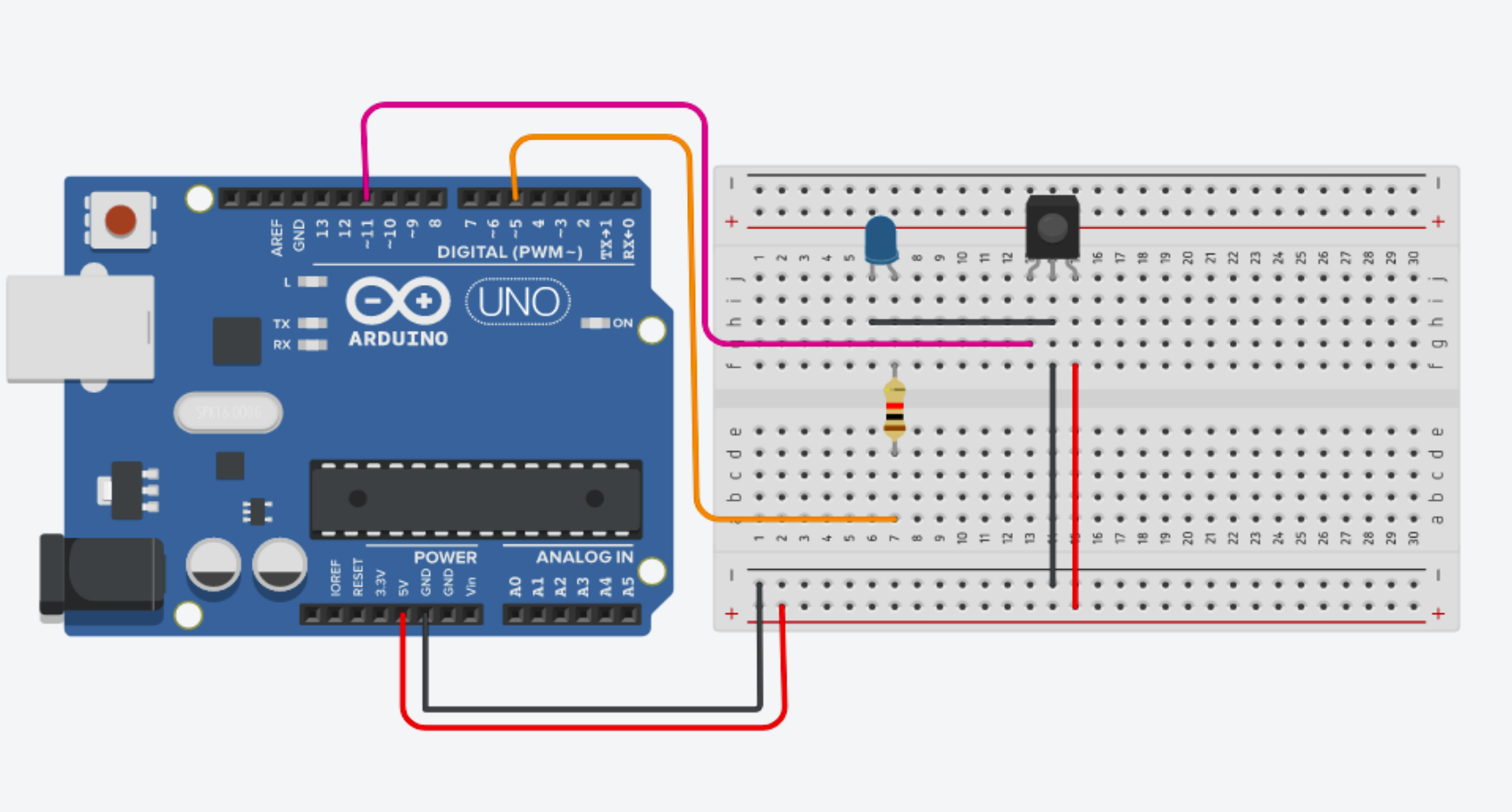
The Working of an IR Receiver



Schematic Circuit



Breadboard Circuit



Applications of the Project

- Smart homes and Offices
- Hospitals
- Underground Mining
- With Complex wiring
- In Wooden homes


Thank you!