

## Chit no 17

This Arduino code involves an IR sensor connected to pin A0, and it controls five output pins (0, 1, 2, 4, and 13). Here's how you can set up the connections for this project:

### Components Needed:

- 1 x IR sensor
- 5 x LEDs (for output)
- 1 x Arduino (e.g., Arduino Uno)
- Resistors (for current limiting on LEDs, typically 220Ω)
- Breadboard and jumper wires

### Wiring Instructions:

#### 1. IR Sensor Connection (A0):

- Connect the **VCC** of the IR sensor to the **5V** pin on the Arduino.
- Connect the **GND** of the IR sensor to the **GND** pin on the Arduino.
- Connect the **Signal** pin of the IR sensor to **A0** (analog pin 0) on the Arduino.

#### 2. LED Connections (Pins 0, 1, 2, 4, 13):

- **LED 1:** Connect the **long leg (anode)** of the LED to **pin 0** on the Arduino. Connect a **220Ω resistor** to the **short leg (cathode)** and then to **GND**.
- **LED 2:** Connect the **long leg (anode)** of the LED to **pin 1** on the Arduino. Connect a **220Ω resistor** to the **short leg (cathode)** and then to **GND**.
- **LED 3:** Connect the **long leg (anode)** of the LED to **pin 2** on the Arduino. Connect a **220Ω resistor** to the **short leg (cathode)** and then to **GND**.
- **LED 4:** Connect the **long leg (anode)** of the LED to **pin 4** on the Arduino. Connect a **220Ω resistor** to the **short leg (cathode)** and then to **GND**.
- **LED 5:** Connect the **long leg (anode)** of the LED to **pin 13** on the Arduino. Connect a **220Ω resistor** to the **short leg (cathode)** and then to **GND**.

### Summary of Connections:

- **IR Sensor:**
  - VCC → 5V (Arduino)
  - GND → GND (Arduino)
  - Signal → A0 (Arduino)
- **LEDs:**
  - Pin 0 → LED1 (220Ω resistor to GND)
  - Pin 1 → LED2 (220Ω resistor to GND)

- Pin 2 → LED3 (220Ω resistor to GND)
- Pin 4 → LED4 (220Ω resistor to GND)
- Pin 13 → LED5 (220Ω resistor to GND)

**Functionality:**

- When the IR sensor detects a signal (e.g., from an object passing in front), it will send a HIGH signal to pin A0. This triggers all five LEDs (pins 0, 1, 2, 4, and 13) to turn ON.
- When the IR sensor does not detect a signal, it sends a LOW signal to pin A0, and all LEDs turn OFF.

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To set up the connections for the provided code, you'll need to wire the **DHT11** temperature and humidity sensor and the **SD card module** to the Arduino. Below are the connection details for both:

**Components Needed:**

- 1 x Arduino (e.g., Arduino Uno)
- 1 x DHT11 Temperature and Humidity Sensor
- 1 x SD card module
- 1 x MicroSD card
- Jumper wires
- Breadboard

**Wiring the DHT11 Sensor:**

- **VCC** of the DHT11 sensor → **5V** (Arduino)
- **GND** of the DHT11 sensor → **GND** (Arduino)
- **DATA** of the DHT11 sensor → **Pin 4** on the Arduino (as defined in your code)

**Wiring the SD Card Module:**

- **VCC** of SD card module → **5V** (Arduino)
- **GND** of SD card module → **GND** (Arduino)
- **MISO** of SD card module → **Pin 12** on Arduino (MISO pin for SPI)
- **MOSI** of SD card module → **Pin 11** on Arduino (MOSI pin for SPI)
- **SCK** of SD card module → **Pin 13** on Arduino (SCK pin for SPI)
- **CS** of SD card module → **Pin 10** on Arduino (Chip Select pin for SD)

**Summary of Connections:**

**DHT11 Sensor:**

- **VCC** → **5V** (Arduino)
- **GND** → **GND** (Arduino)
- **DATA** → **Pin 4** (Arduino)

**SD Card Module:**

- **VCC** → **5V** (Arduino)
- **GND** → **GND** (Arduino)
- **MISO** → **Pin 12** (Arduino)
- **MOSI** → **Pin 11** (Arduino)
- **SCK** → **Pin 13** (Arduino)

- **CS → Pin 10** (Arduino)

**Functionality:**

- The DHT11 sensor will read the temperature and humidity data every 2 seconds (as per the `delay(2000)` in your code).
- The values will be printed to the Serial Monitor, where you can see the humidity and temperature readings.
- If you want to save this data to an SD card, you would need to modify the code to write to the SD card (which is not shown in the provided code).

**Additional Notes:**

- Ensure that you have the **DHT** and **SD** libraries installed in the Arduino IDE for this to work.
- Make sure the SD card is formatted correctly (usually FAT16 or FAT32) before using it in the SD module.