Project-2

Explaination -

LEDs as a output, are connected to pin 2, 3, 4 & 5. Each led blinks after others with the gap of 0.1 second respectively.

Instruction -

1. Connect 4 led's anode(+) to pin 2, 3, 4 & 5 respectively through 220ohm resistor and cathode(-) to GND of arduino.

2. Open Arduino IDE.

3. Write the code in sketch and compile it.

4. Connect Arduino UNO board with PC using USB cable.

5. Go to **Tools -> Board ->** Select Arduino/Genuino Uno.

6. Go to **Port** -> Select COM port.

7. Upload the sketch to Arduino Uno.

Project-3

Explaination -

LEDs as a output, are connected to pin 2, 3, 4 & 5. Each led blinks after others with the gap of 0.1 second respectively. Loop is used to shrink the sketch.

Instruction -

1. Connect 4 led's anode(+) to pin 2, 3, 4 & 5 respectively through 220ohm resistor and cathode(-) to GND of arduino.

2. Open Arduino IDE.

3. Write the code in sketch and compile it.

4. Connect Arduino UNO board with PC using USB cable.

5. Go to **Tools -> Board ->** Select Arduino/Genuino Uno.

6. Go to **Port** -> Select COM port.

7. Upload the sketch to Arduino Uno.

Project-4

Explaination -

Pulse Width Modulation, or PWM, is a technique for getting analog results with digital means.For example- Speed control of motors, LED brightness control etc. PWM pins are 3, 5, 6, 9, 10 & 11. This operation can be done by connecting led with one of the any these pins. Here pin 3 is being used.

Instruction -

1. Connect led's anode(+) to pin 3 through 220ohm resistor and cathode(-) to GND of arduino.

2. Open Arduino IDE.

3. Write the code in sketch and compile it.

4. Go to **Tools -> Board ->** Select Arduino/Genuino Uno.

5. Go to **Port** -> Select COM port.

6. Upload the sketch to Arduino Uno.

Project-5

Explaination -

In this project, LED blinks for 0.5 second when switch is pressed.

Instruction -

1. Connect led's anode(+) to pin 12 through 220ohm resistor and cathode(-) to GND of arduino.

2. Connect switch's one end to VCC and other end to pin 7 of arduino.

3. Connect 22pF capacitor and 10K resistor as per the circuit diagram.

4. Open Arduino IDE.

5. Write the code in sketch and compile it.

6. Go to **Tools -> Board ->** Select Arduino/Genuino Uno.

7. Go to **Port** -> Select COM port.

8. Upload the sketch to Arduino Uno.

Project-7

Explaination -

In this project, LED blinks in the time interval set by potentiometer.

Instruction -

1. Connect led's anode(+) to pin 3 through 220ohm resistor and cathode(-) to GND of arduino.

2. Connect potentiometer to pin A0 of arduino.

3. Open Arduino IDE.

4. Write the code in sketch and compile it.

5. Go to **Tools -> Board ->** Select Arduino/Genuino Uno.

6. Go to **Port** -> Select COM port.

7. Upload the sketch to Arduino Uno.

Project-8

Explaination -

In this project, we will control the sound intensity of Buzzer.

Instruction -

1. Connect Piezo Buzzer's one end to GND and other end to PWM pin 3 of arduino.

2. Open Arduino IDE.

3. Write the code in sketch and compile it.

4. Go to **Tools -> Board ->** Select Arduino/Genuino Uno.

5. Go to **Port** -> Select COM port.

6. Upload the sketch to Arduino Uno.

Project-9

Explaination -

In this project, Intensity ratings(0-255) on photoresistor will be displayed in **Serial Monitor** of arduino ide.

Instruction -

1. Connect led's anode(+) to pin 3 through 220ohm resistor and cathode(-) to GND of arduino.

2. Connect photoresistor to pin A0 and other pin to 5V of arduino.

3. Open Arduino IDE.

4. Write the code in sketch and compile it.

5. Go to **Tools -> Board ->** Select Arduino/Genuino Uno.

6. Go to **Port** -> Select COM port.

7. Upload the sketch to Arduino Uno.

Project-10

Explaination -

In this project, we will measure temperature using LM35. Temperature will be displayed on the **Serial monitor** of arduino ide.

Instruction -

1. Connect middle pin of LM35 to analog pin A0 of arduino.

2. Open Arduino IDE.

3. Write the code in sketch and compile it.

4. Go to **Tools -> Board ->** Select Arduino/Genuino Uno.

5. Go to **Port** -> Select COM port.

6. Upload the sketch to Arduino Uno.

Project-11

Explaination -

In this project, we will control the light intensity of LED by using photoresistor. Intensity ratings(0-255) on photoresistor will be displayed in **Serial Monitor** of arduino ide.

Instruction -

1. Connect led's anode(+) to pin 3 through 220ohm resistor and cathode(-) to GND of arduino.

2. Connect photoresistor to pin A0 and other pin to 5V of arduino.

3. Open Arduino IDE.

4. Write the code in sketch and compile it.

5. Go to **Tools -> Board ->** Select Arduino/Genuino Uno.

6. Go to **Port** -> Select COM port.

7. Upload the sketch to Arduino Uno.

Project-12

Explaination -

In this project, Numbers will be displayed on common cathode seven segment display.

Instruction -

1. Connect seven segment's **com** pin to GND of arduino and a,b,c,d,e,f,g pins are connected to 8,9,4,5,6,2,3 pins of arduino respectively.

2. Open Arduino IDE.

3. Write the code in sketch and compile it.

4. Go to **Tools -> Board ->** Select Arduino/Genuino Uno.

5. Go to **Port** -> Select COM port.

6. Upload the sketch to Arduino Uno.

Project-14

Explaination -

In this project, DC motor is being interfaced using transistor with the help of arduino. Motor turns on and off in every 5 seconds. Diode and capacitor are used to remove back emf generated by motor and voltage fluctuation respectively.

Instruction -

1. Connect base of transistor to pin 8 of arduino, emitter to GND and collector to motor, p terminal of diode and capacitor. Other terminals of motor, n terminal and capacitor to external battery's +ve terminal.

2. Open Arduino IDE.

3. Write the code in sketch and compile it.

4. Go to **Tools -> Board ->** Select Arduino/Genuino Uno.

5. Go to **Port** -> Select COM port.

6. Upload the sketch to Arduino Uno.

Project-15

Explaination -

In this project, DC motor is being interfaced and speed is controlled using transistor with the help of arduino. Diode and capacitor are used to remove back emf generated by motor and voltage fluctuation respectively.

Instruction -

1. Connect base of transistor to pin 8 of arduino, emitter to GND and collector to motor, p terminal of diode and capacitor. Other terminals of motor, n terminal and capacitor to external battery's +ve terminal.

2. Open Arduino IDE.

3. Write the code in sketch and compile it.

4. Go to **Tools -> Board ->** Select Arduino/Genuino Uno.

5. Go to **Port** -> Select COM port.

6. Upload the sketch to Arduino Uno.