

Lab 1

ICS423 - Internet of Things

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Question

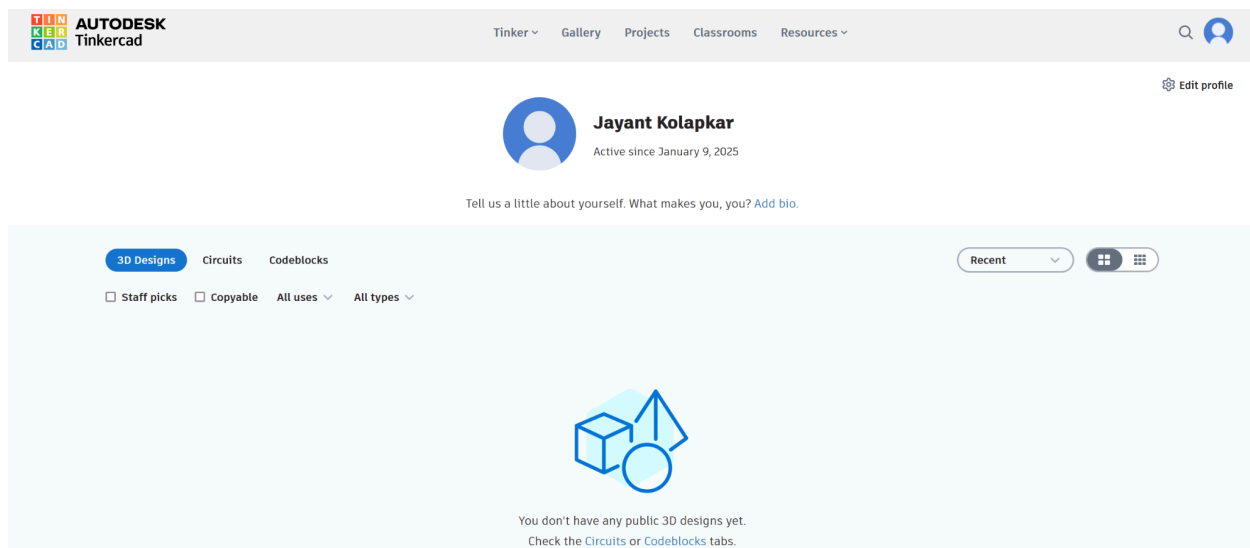
Task 1: Create an account in Tinkercad.

Task 2: Explore IoT components using Tinkercad circuits.

Task 3: Explore an LED blink exercise using Tinkercad circuits.

Task 1

Sign up to TinkerCAD using email.

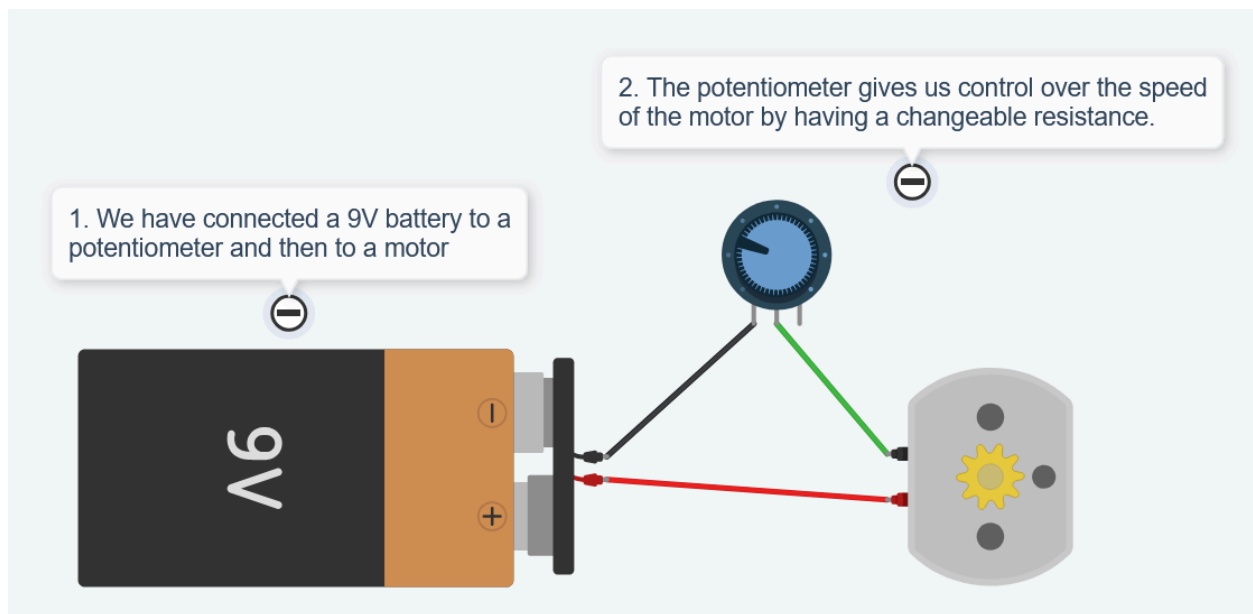


Task 2

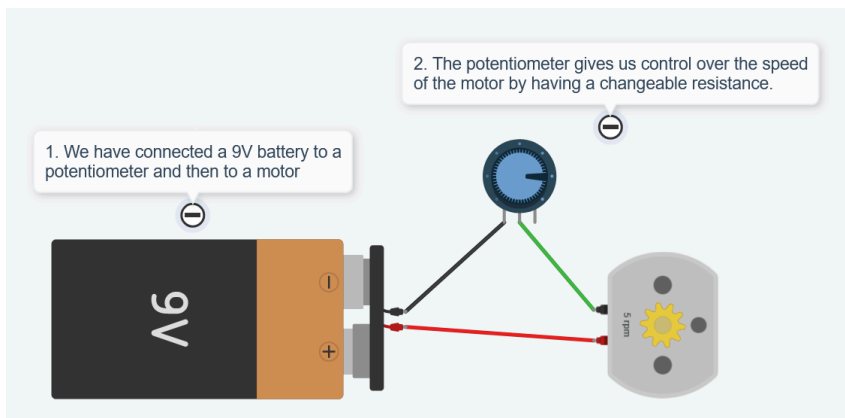
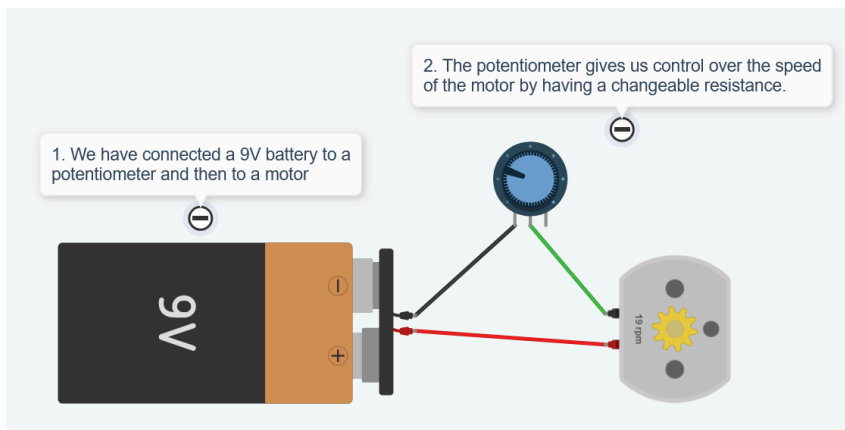
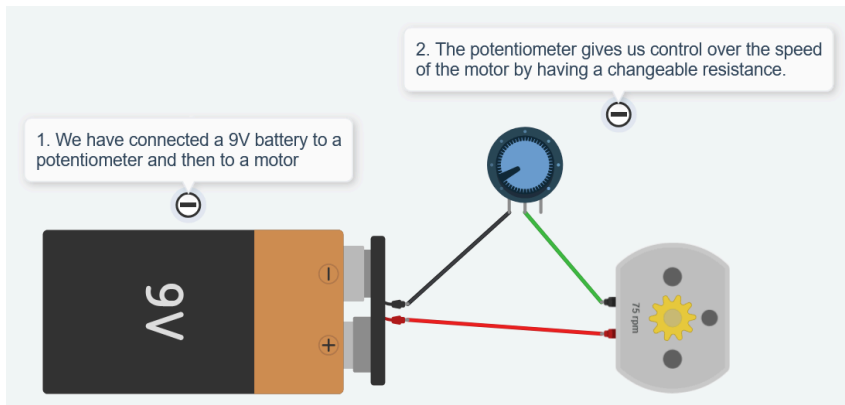
We made a simple circuit to control the speed of a DC motor using a potentiometer.

1. **Power Source:** A 9V battery provides the electrical energy to power the motor.
2. **Potentiometer:** This variable resistor acts as a voltage divider. By turning the knob, you change the resistance, which in turn adjusts the voltage supplied to the motor.
3. **Motor:** The DC motor receives the variable voltage from the potentiometer. As the voltage increases, the motor spins faster. Conversely, decreasing the voltage slows down the motor.

In essence, the potentiometer acts as a speed controller for the motor, allowing us to fine-tune its rotation speed.



Output for various settings



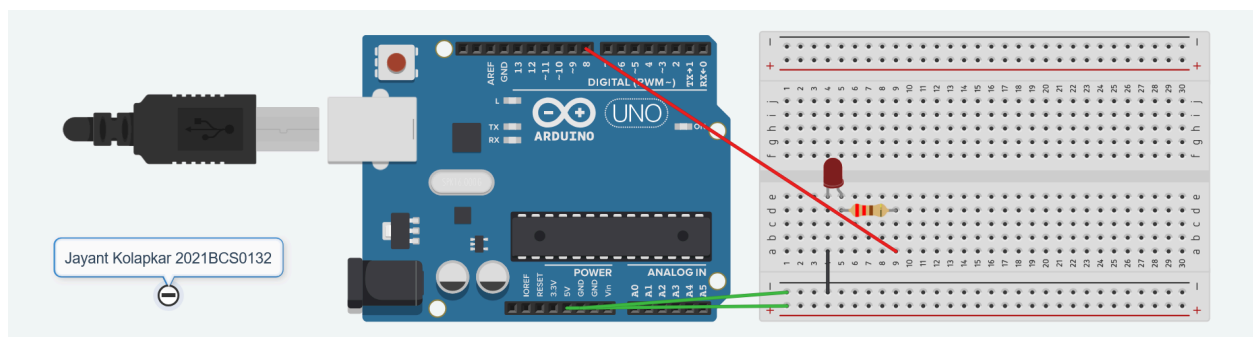
Task 3

We use Arduino UNO, breadboard and LED to make the LED light up and turn off repeatedly. We connect the LED to the Arduino board using wires and a resistor. The Arduino has a tiny program that tells it to

- Turn the LED on for a short time.
- Turn the LED off for a short time.
- Repeat these steps over and over.

The resistor protects the LED from getting too much electricity.

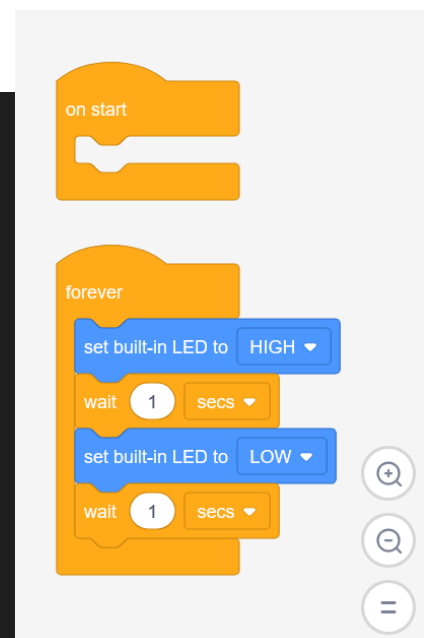
In essence, the Arduino acts like a tiny brain that controls the LED's on/off behavior.



Code

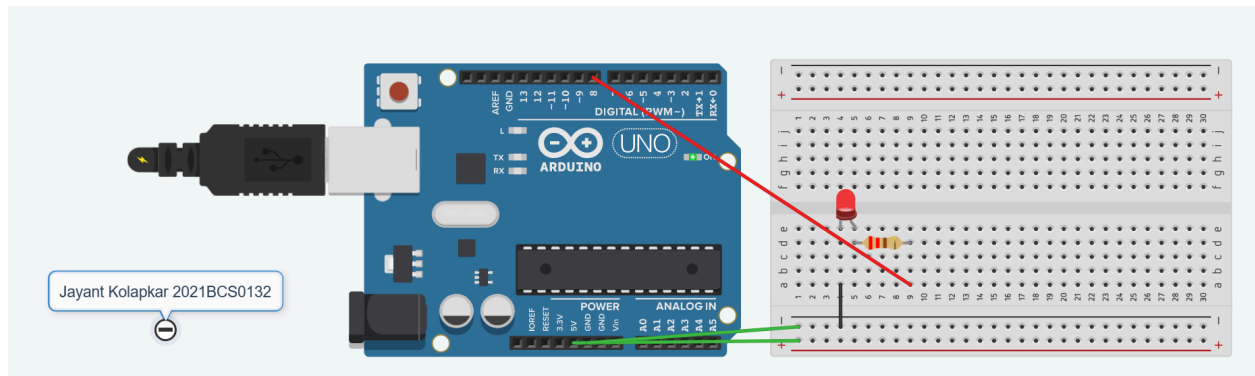
```
void setup()
{
  pinMode(LED_BUILTIN, OUTPUT);
}

void loop()
{
  digitalWrite(LED_BUILTIN, HIGH);
  delay(1000); // Wait for 1000 millisecond(s)
  digitalWrite(LED_BUILTIN, LOW);
  delay(1000); // Wait for 1000 millisecond(s)
}
```



Output

Blinking on



Blinking off

