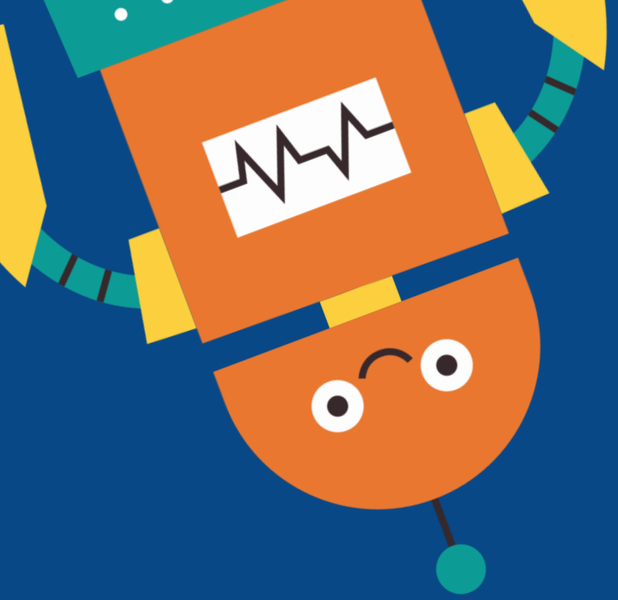
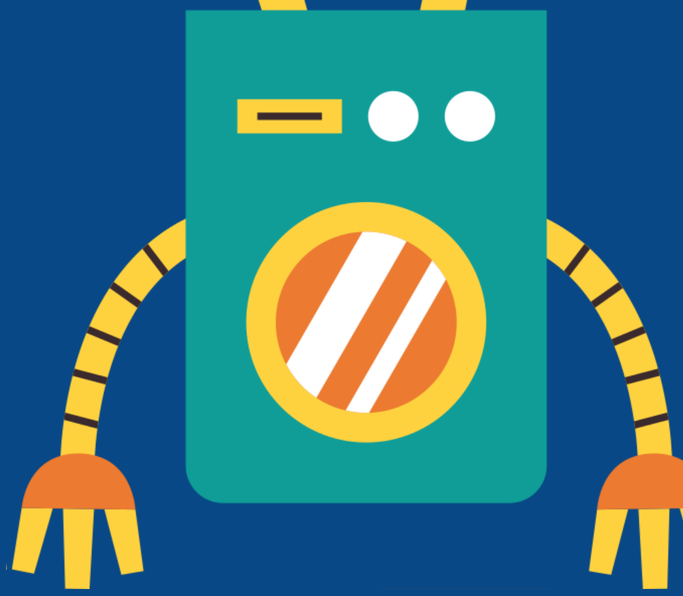
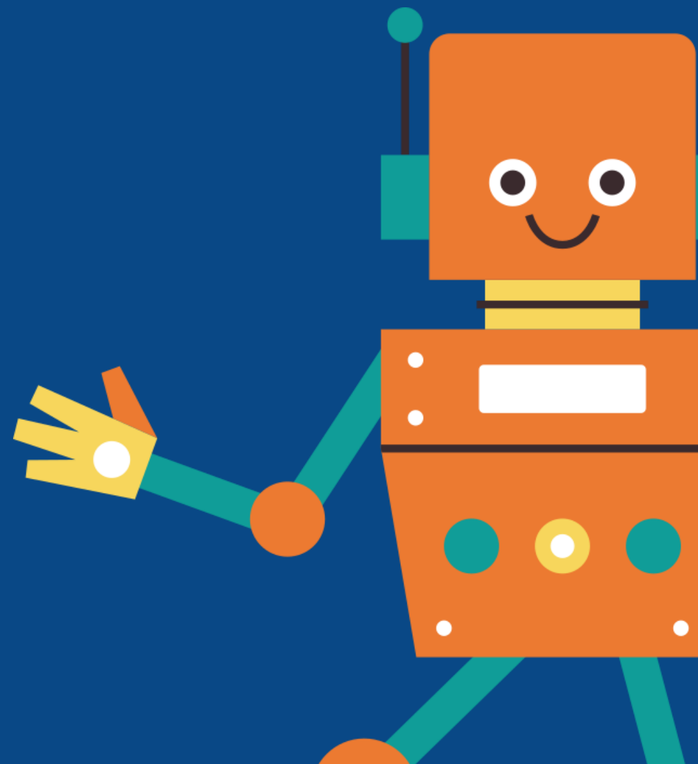
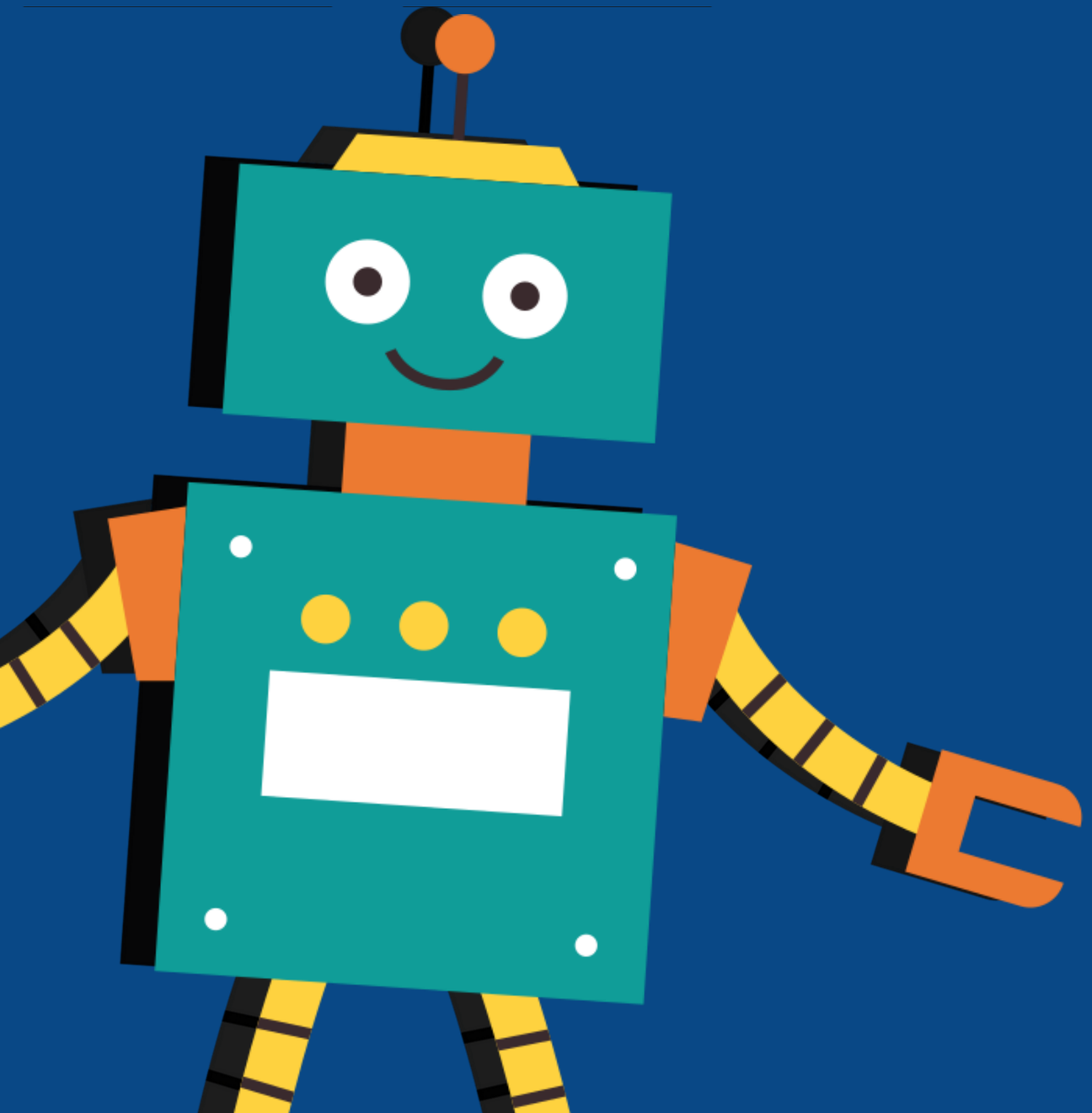




QUICK START GUIDE

Arduino Robotics for Kids

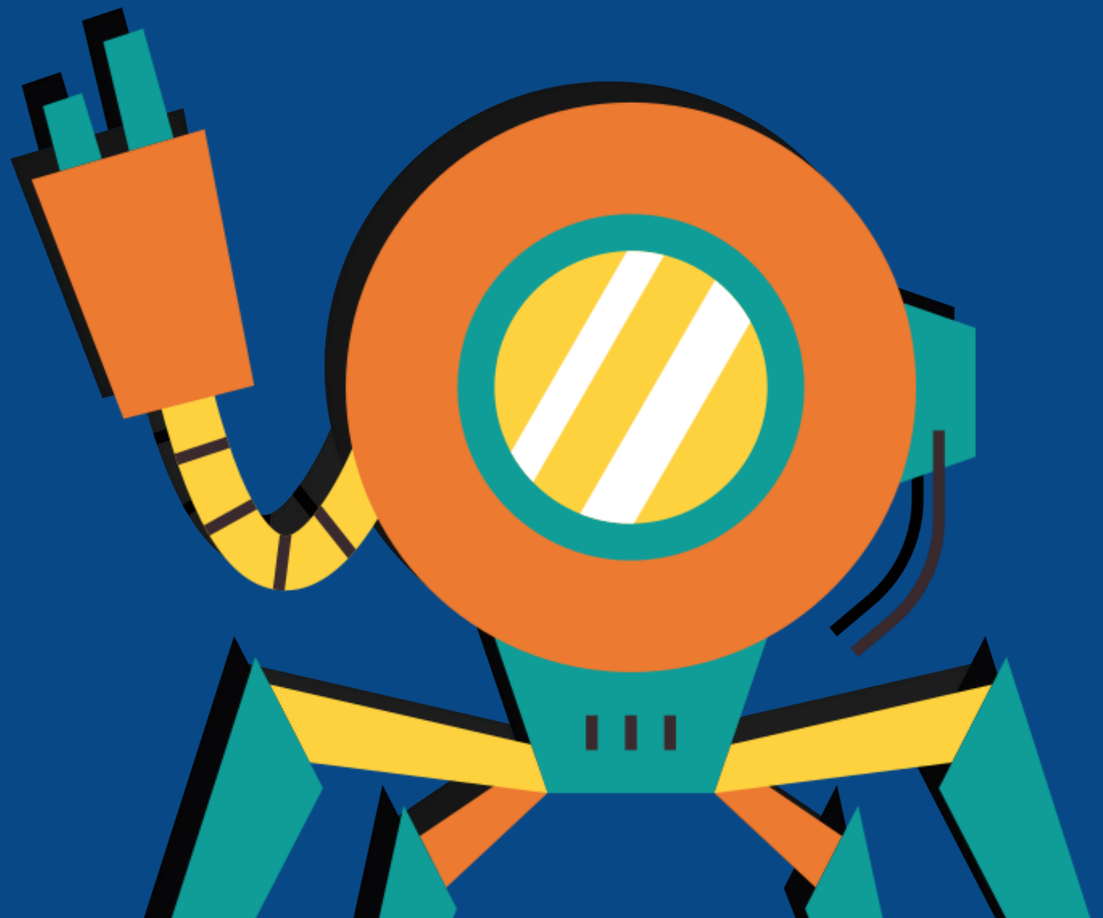




INTRODUCTIO
N

Welcome to the exciting world of robotics! This guide will help you get started with your Arduino projects. You will learn how to build and code robots that can move, sense, and interact with the world around them!

KEY COMPONENTS IN YOUR KIT



1

Arduino Uno Board
- The brain of your robot! It controls everything.

2

Breadboard
- A tool to help you build your circuits without soldering.

3

LEDs
- Lights that you can turn on and off with your code.

4

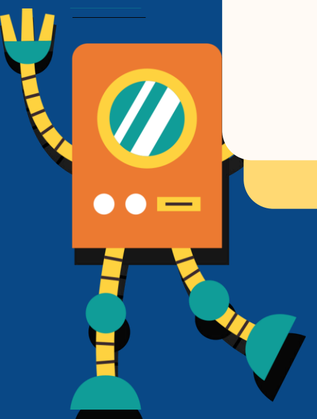
Push Buttons

- Buttons that can turn things on/off when pressed.

5

Sensors

- Ultrasonic Sensor: Measures distance to objects.
- IR Line Tracking Sensors: Detect lines on the ground for robots to follow.
- Temperature Sensor: Measures temperature



6

Motors

- DC Motor: Powers wheels to make your robot move.
- Servo Motor: Moves to specific angles.

7

Motor Driver Module

- Controls motors and allows them to run in different directions.

8

Resistors

- Protects components from too much electricity.

9

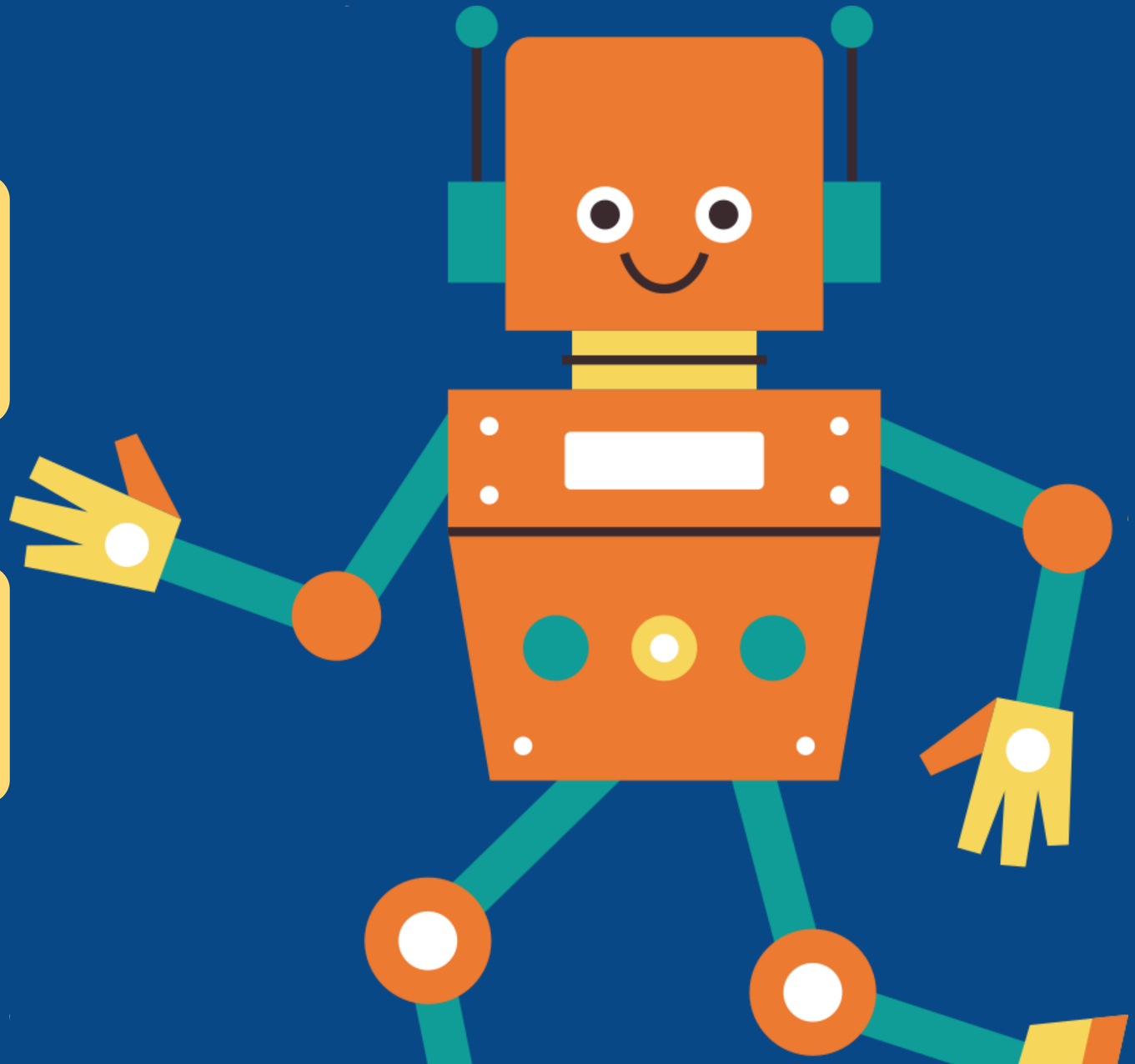
Jumper Wires

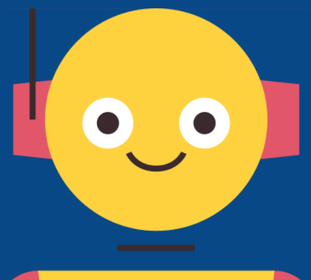
- Connects everything on the breadboard and Arduino.

10

Battery Holder & Batteries

- Powers your robot when it’s not connected to a computer.





BASIC CONNECTIONS

1.LED

>Connect the longer leg (anode) to the 5V pin on Arduino.

>Connect the shorter leg (cathode) to a resistor, then to GND on Arduino.

2.Push Button

>Connect one pin to GND and the other to a digital pin (e.g., pin 2).

3. DC Motor

>Connect the motor to the motor driver module.

>Connect the motor driver module to the Arduino using jumper wires.

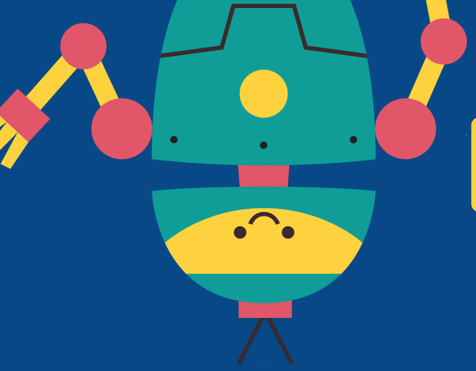
4. Ultrasonic Sensor

>VCC to 5V on Arduino

>GND to GND

>Trig and Echo to digital pins (e.g., pins 9 and 10)

BASIC CODE EXAMPLE: BLINK AN LED



```
int ledPin = 13; // LED connected to pin 13

void setup() {
  pinMode(ledPin, OUTPUT); // Set the LED pin as output
}

void loop() {
  digitalWrite(ledPin, HIGH); // Turn the LED on
  delay(1000); // Wait for 1 second
  digitalWrite(ledPin, LOW); // Turn the LED off
  delay(1000); // Wait for 1 second
}
```

TROUBLESHOOTING TIPS

LED doesn’t light up?

- Check your wiring. Make sure the longer leg is connected to the 5V pin, and the shorter leg is connected to the resistor and GND.

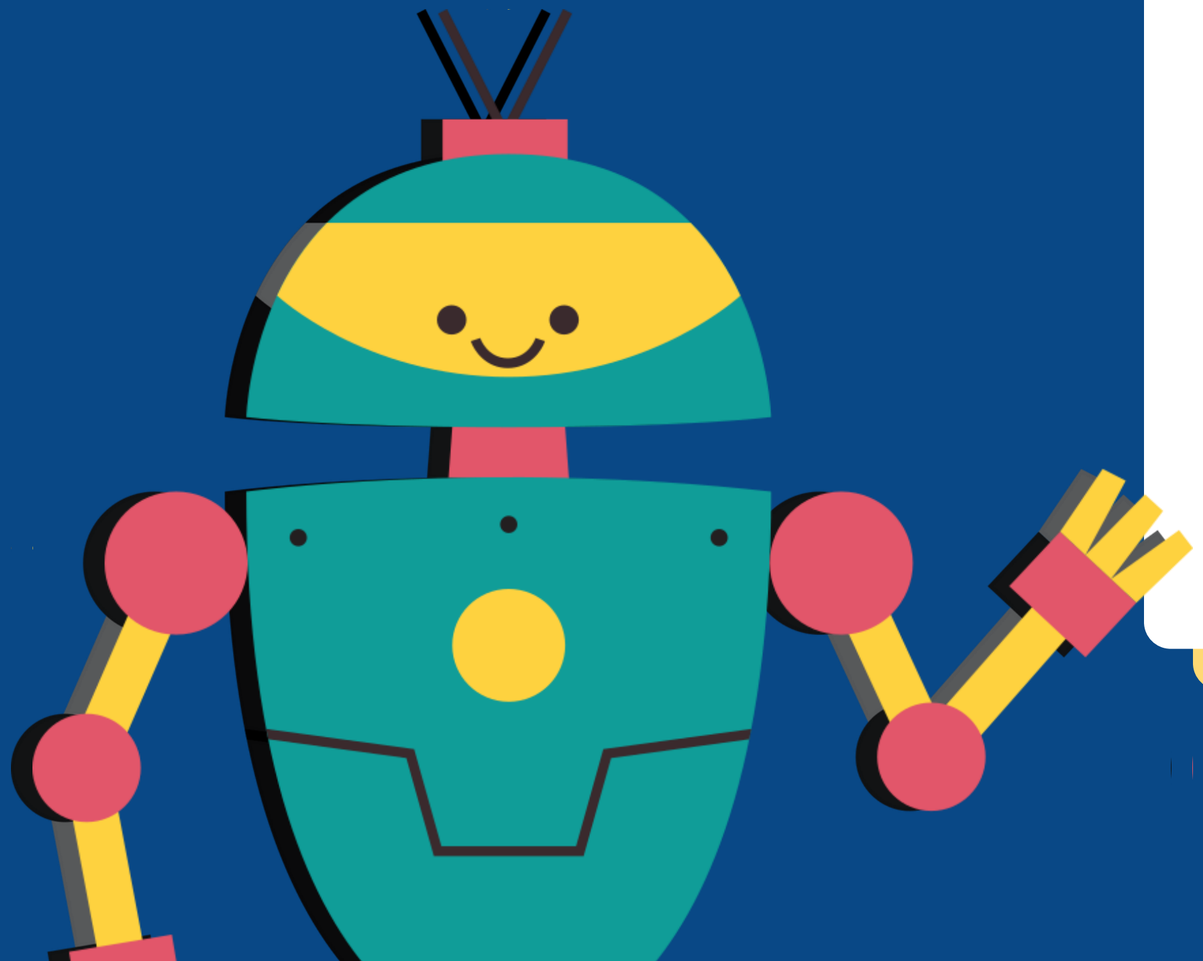
Motor not moving?

- Double-check the connections to the motor driver module and ensure the motor driver is connected to the correct pins on the Arduino.

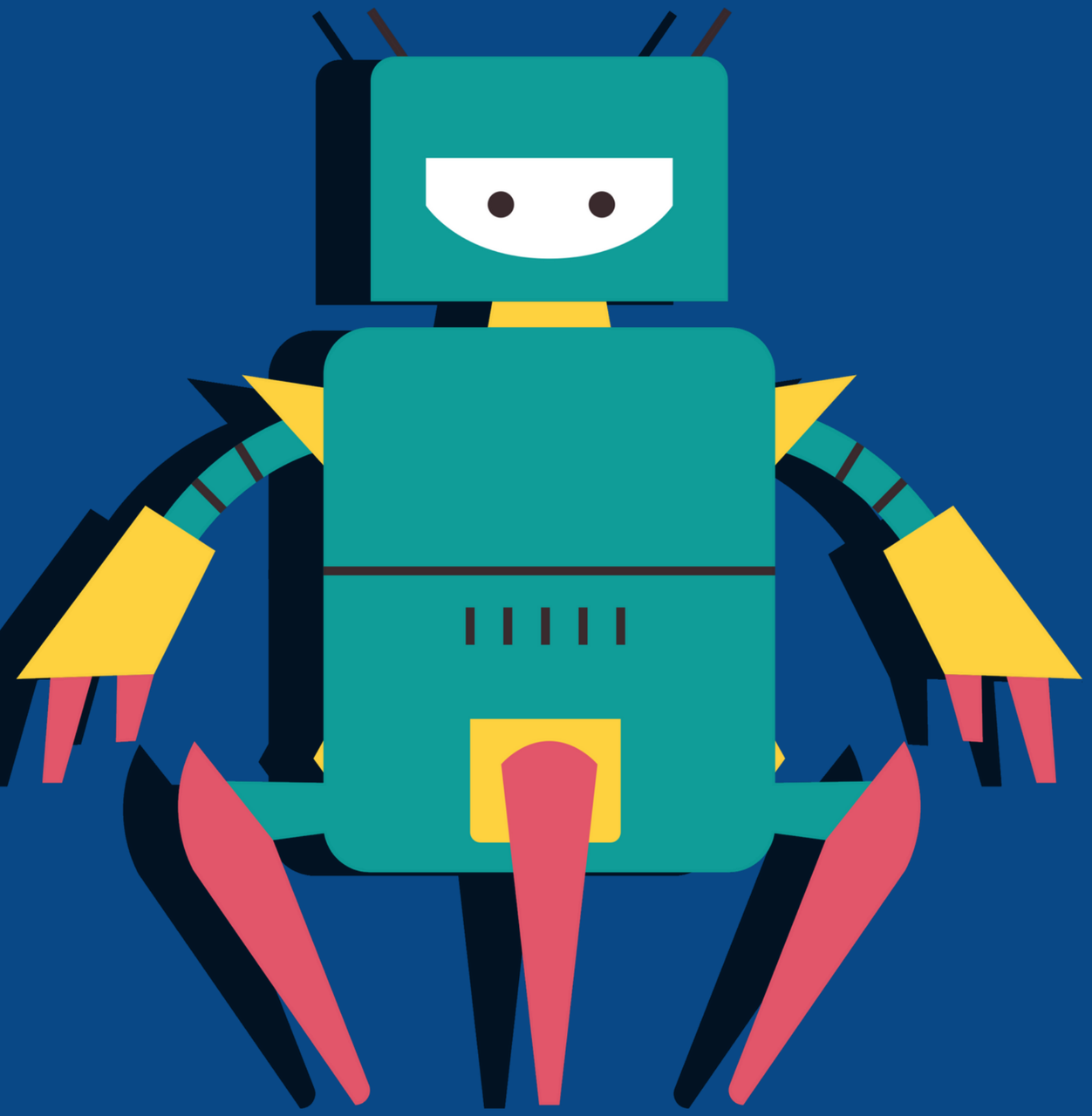
Button not working?

- Ensure that one pin of the button is connected to GND, and the other is connected to a digital pin.

FUN IDEAS TO EXPLORE



- Try changing the blink code to make your LED blink faster or slower.
- Build your own line-following robot using the IR sensors!
- Experiment with the ultrasonic sensor to make your robot stop when it detects an obstacle.



WHERE TO FIND HELP

Your Instructor: If you’re stuck, don’t hesitate to ask for help!

Online Resources: Websites like Arduino.cc have tutorials and guides.

HAVE FUN BUILDING YOUR ROBOTS, AND REMEMBER— EXPERIMENT, EXPLORE, AND LEARN THROUGH HANDS-ON PLAY!

THANK YOU