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PRAKTIK ARDUINO

From Simulation to Reality

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AGENDA HARI INI

01 Instalasi Arduino IDE

02 Setup Hardware Arduino

03 Praktik dengan Komponen
LED dan Sensor Ultrasonik

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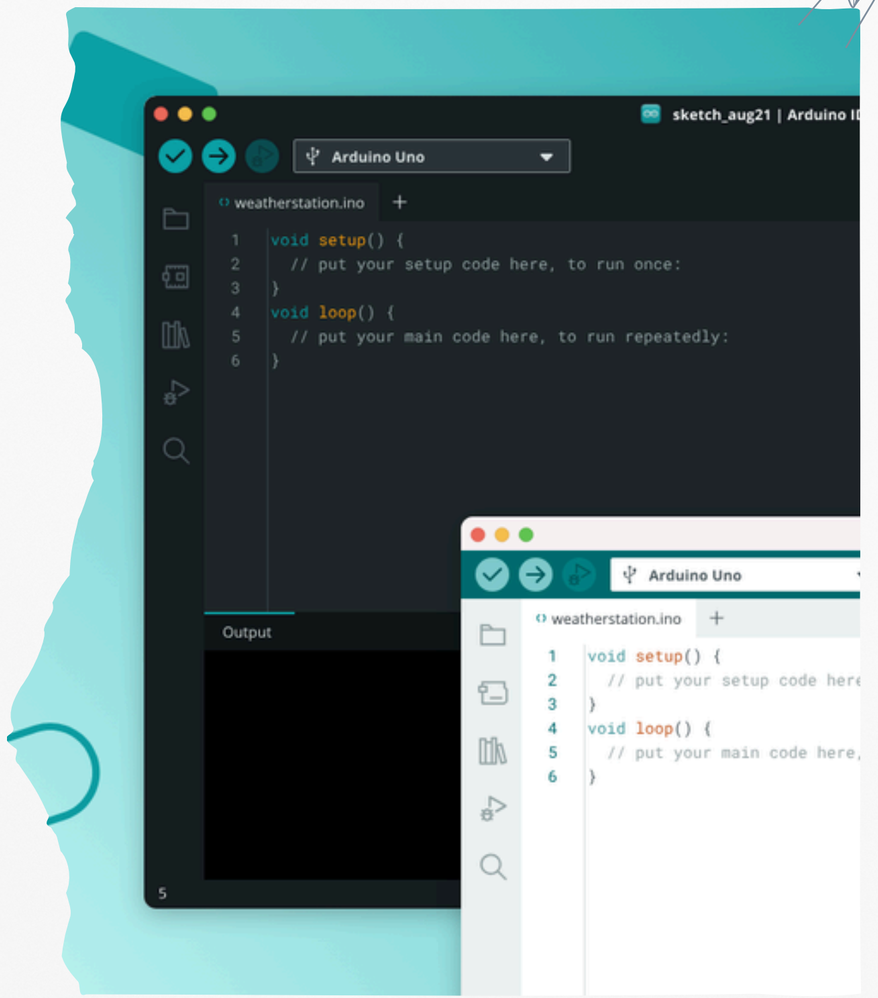
INSTALASI ARDUINO IDE

01 Download Arduino IDE dari https://www.arduino.cc/en/software/

02 Install driver untuk board Arduino

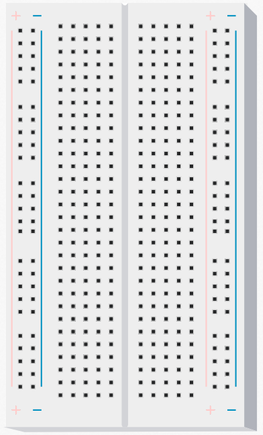
03 Konfigurasi board dan port

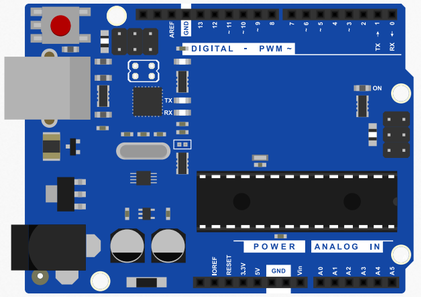
04 Test koneksi dengan board



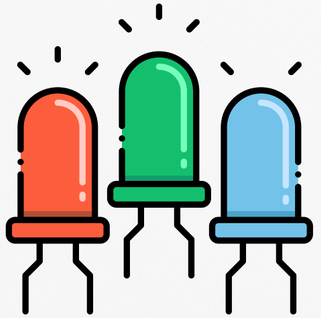
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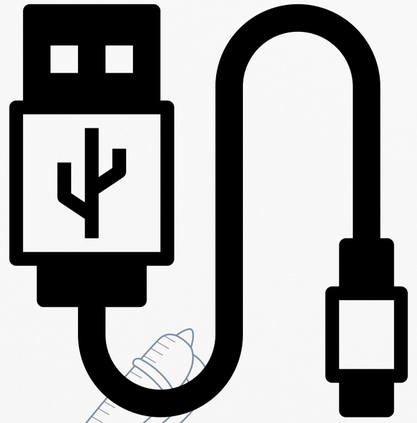
PERSIAPAN HARDWARE





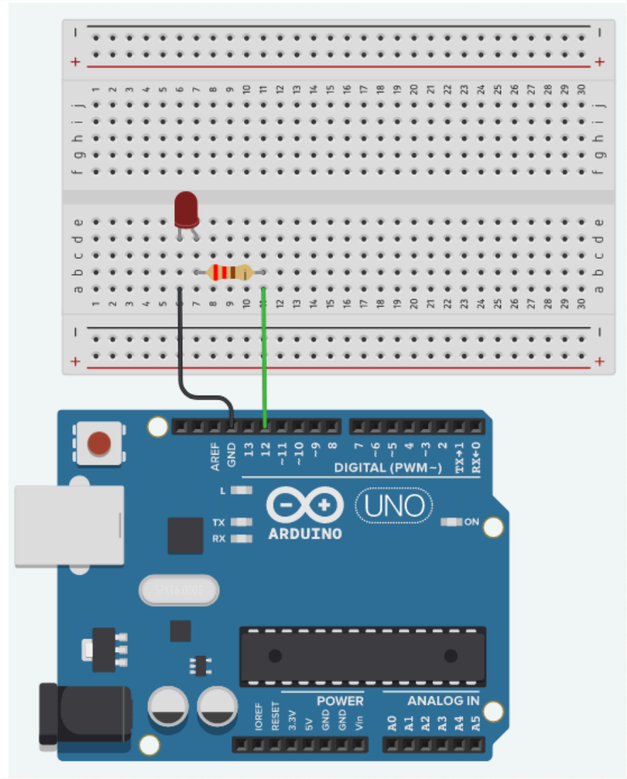
- Arduino Uno/Nano
- Breadboard dan jumper wires
- Komponen: LED, resistor, sensor
- Kabel USB untuk koneksi PC





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PRAKTIK LED



- Rangkaian LED + resistor
- Program blink dasar

```
void setup() {
  pinMode(13, OUTPUT); // Pin 13 sebagai output
}

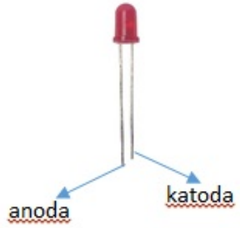
void loop() {
  digitalWrite(13, HIGH); // LED nyala
  delay(1000);            // Tunggu 1 detik
  digitalWrite(13, LOW);  // LED mati
  delay(1000);            // Tunggu 1 detik
}
```

- Variasi: LED berkedip dengan pola

```
void setup() {
  pinMode(13, OUTPUT);
}

void loop() {
  // Kedip cepat 3x
  for(int i = 0; i < 3; i++) {
    digitalWrite(13, HIGH);
    delay(200);
    digitalWrite(13, LOW);
    delay(200);
  }

  // Pause panjang
  delay(2000);
}
```





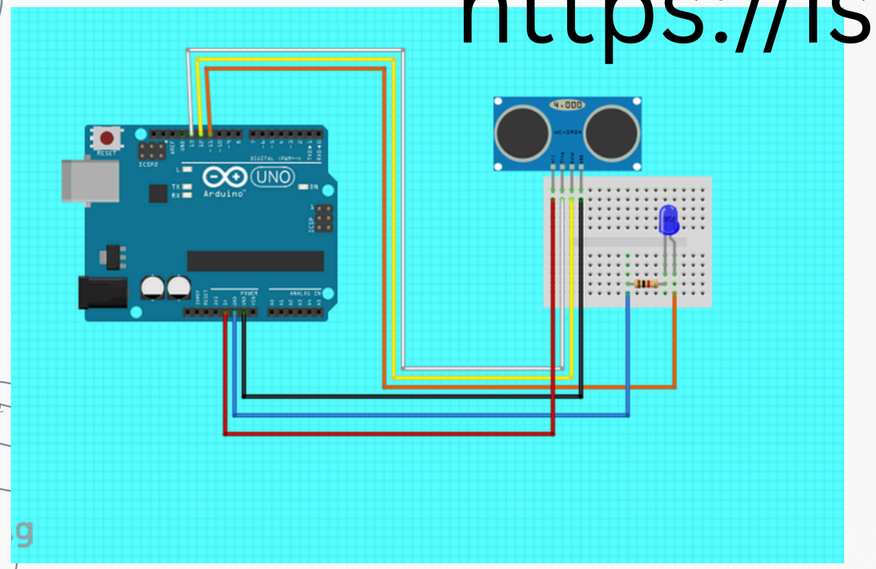
- Troubleshooting koneksi

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PRAKTIK SENSOR ULTRASONIK

- Wiring sensor HC-SR04
- Program pembacaan jarak
- Serial monitor untuk output

https://is.gd/ultrasonik1



1. Arduino Uno
2. Ultrasonic Sensor (HC-SR04).
3. BreadBoard
4. ~~1 kohm Resistor.~~
5. Jumpers.

```ino
// Pin connections
const int trigPin = 9;
const int echoPin = 10;

void setup() {
  Serial.begin(9600);
  pinMode(trigPin, OUTPUT);
  pinMode(echoPin, INPUT);
}

void loop() {
  long duration, distance;

  // Kirim sinyal trigger
  digitalWrite(trigPin, LOW);
  delayMicroseconds(2);
  digitalWrite(trigPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(trigPin, LOW);

  // Baca echo
  duration = pulseIn(echoPin, HIGH);

  // Hitung jarak (cm)
  distance = duration * 0.034 / 2;

  // Tampilkan ke serial monitor
  Serial.print("Jarak: ");
  Serial.print(distance);
  Serial.println(" cm");

  delay(500);
}
```

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TERIMA KASIH