SMANSA IT CLUB

PRAKTIK ARDUINO

Buzzer, DHT11, dan Sensor Parkir

Melanjutkan dari LED dan Sensor Ultrasonik

12/09/2025

REVIEW
2 MINGGU LALU

Yang Sudah Dipelajari:

- ✅ Instalasi Arduino IDE
- ✅ Setup Hardware Arduino
- ✅ Praktik LED (Digital Output)
- ✅ Sensor Ultrasonik HC-SR04 (Digital Input)

Hari Ini:

- 🔊 Buzzer (Audio Output)
- 🌡️ DHT11 (Temperature & Humidity)
- 🚗 Project: Sensor Parkir



BUZZER

Apa itu Buzzer?

- Komponen untuk menghasilkan suara
- Ada 2 jenis: Active & Passive Buzzer
- Pin: VCC, GND, Signal

Koneksi:

- VCC → 5V Arduino
- GND → GND Arduino
- Signal → Pin Digital (misal: Pin 8)



```ino
int buzzerPin = 8;

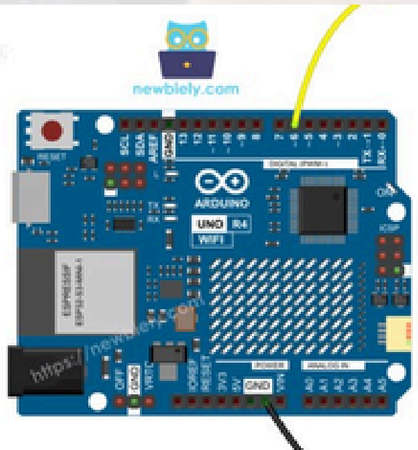
void setup() {
  pinMode(buzzerPin, OUTPUT);
}

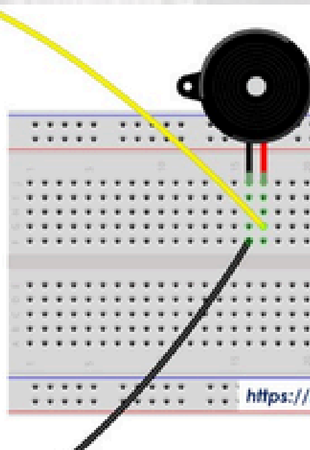
void loop() {
  // Bunyi singkat
  digitalWrite(buzzerPin, HIGH);
  delay(500);
  digitalWrite(buzzerPin, LOW);
  delay(500);

  // Bunyi dengan tone (untuk passive buzzer)
  // tone(buzzerPin, 1000); // 1000 Hz
  // delay(1000);
  // noTone(buzzerPin);
  // delay(1000);
}
```











DHT11

DHT11 Sensor

- Mengukur suhu dan kelembaban
- Output: Digital
- Range: 0-50°C, 20-90% RH

Koneksi:

- VCC → 5V Arduino
- GND → GND Arduino
- Data → Pin Digital (misal: Pin 2)

Library Diperlukan:
DHT sensor library by Adafruit



```ino
#include "DHT.h"

#define DHTPIN 2
#define DHTTYPE DHT11

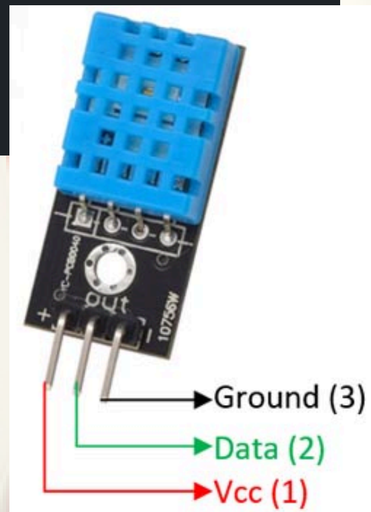
DHT dht(DHTPIN, DHTTYPE);

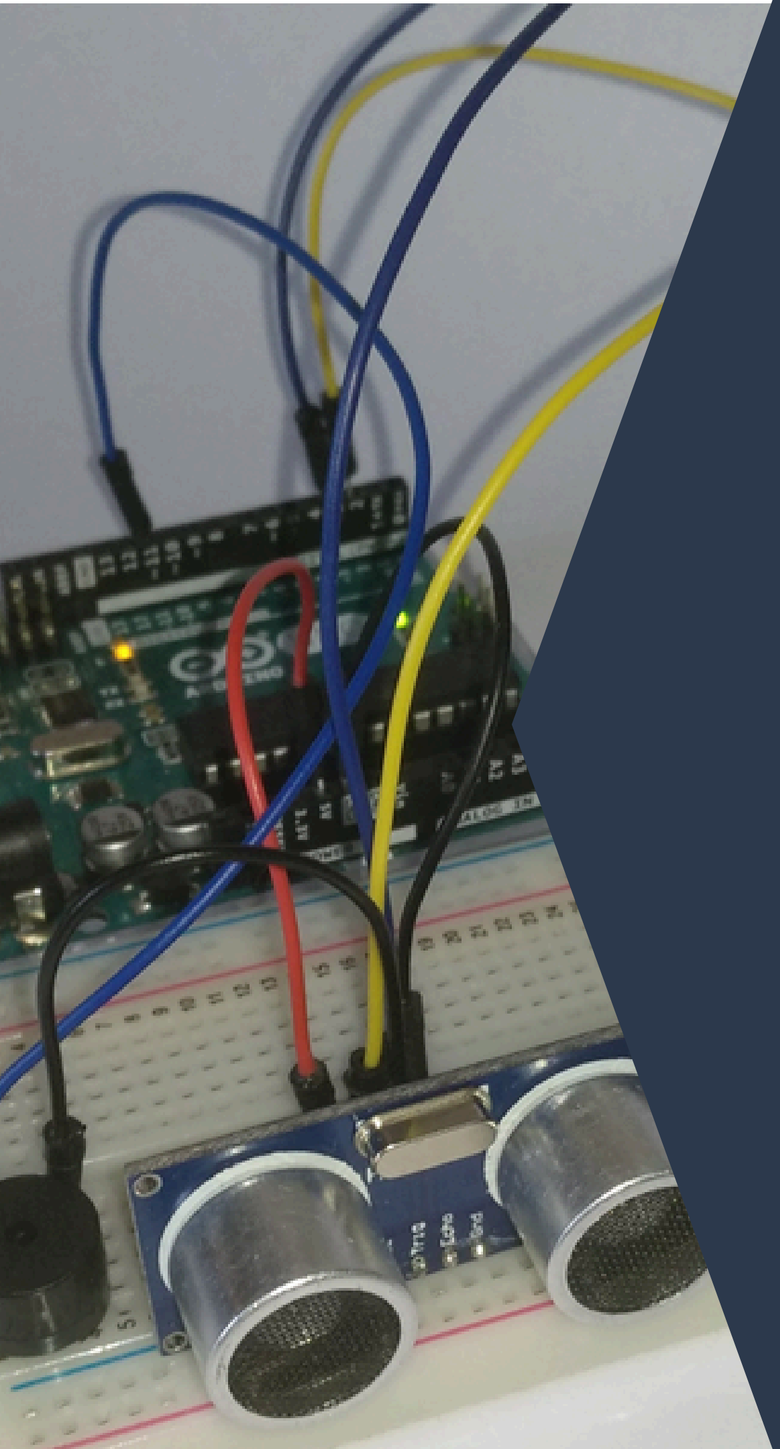
void setup() {
  Serial.begin(9600);
  dht.begin();
}

void loop() {
  float humidity = dht.readHumidity();
  float temperature = dht.readTemperature();

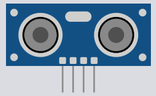
  Serial.print("Humidity: ");
  Serial.print(humidity);
  Serial.print("%  Temperature: ");
  Serial.print(temperature);
  Serial.println("°C");

  delay(2000);
}
```





PROJEK SENSOR PARKIR



Konsep:

- Ultrasonik mengukur jarak
- Buzzer memberikan audio feedback
- Semakin dekat = bunyi semakin cepat

Komponen:

- Arduino Uno
- HC-SR04 Ultrasonik
- Buzzer
- Kabel jumper

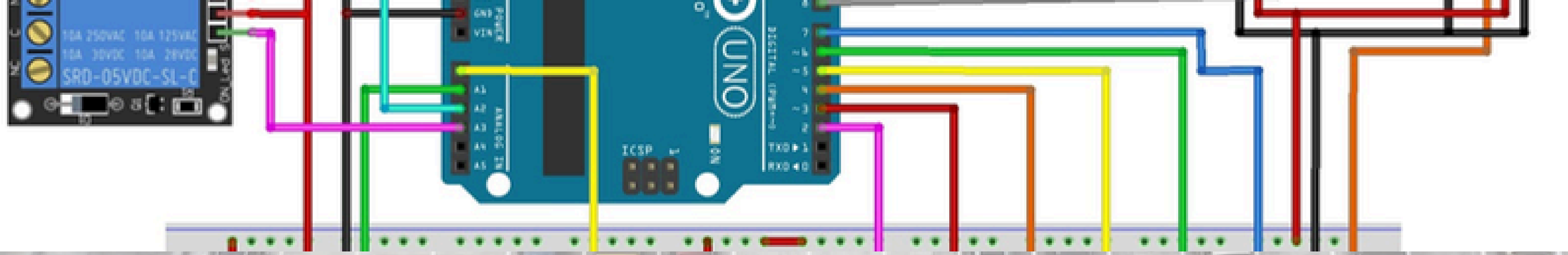
Koneksi:

HC-SR04:

- VCC → 5V, GND → GND
- Trig → Pin 9, Echo → Pin 10

Buzzer:

- VCC → 5V, GND → GND
- Signal → Pin 8



CODE SENSOR PARKIR

```ino
int trigPin = 9;
int echoPin = 10;
int buzzerPin = 8;

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

long measureDistance() {
  digitalWrite(trigPin, LOW);
  delayMicroseconds(2);
  digitalWrite(trigPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(trigPin, LOW);

  long duration = pulseIn(echoPin, HIGH);
  long distance = duration * 0.034 / 2;
  return distance;
}
```

```ino
void loop() {
  long distance = measureDistance();

  Serial.print("Jarak: ");
  Serial.print(distance);
  Serial.println(" cm");

  if (distance < 50) {
    // Semakin dekat, bunyi semakin cepat
    int delayTime = distance * 10;

    digitalWrite(buzzerPin, HIGH);
    delay(100);
    digitalWrite(buzzerPin, LOW);
    delay(delayTime);
  } else {
    // Jika jauh, tidak bunyi
    digitalWrite(buzzerPin, LOW);
    delay(500);
  }
}
```

https://is.gd/sparkir

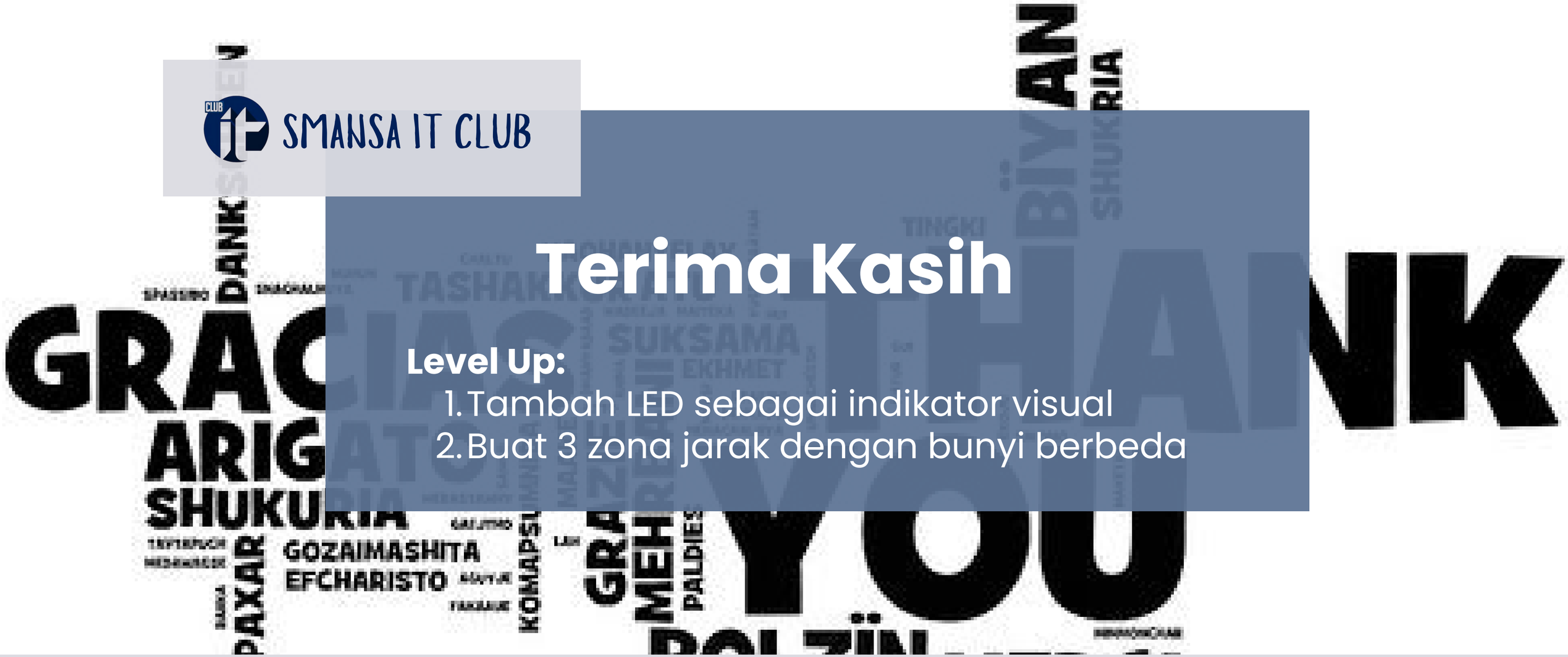


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Terima Kasih

Level Up:

1. Tambah LED sebagai indikator visual
2. Buat 3 zona jarak dengan bunyi berbeda



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