PROJECT CODE

Program

```
#include <Wire.h>
#include <Adafruit_MLX90614.h>

#define TRIG_PIN 9
#define ECHO_PIN 10
#define LED_PIN 7
#define SOUND_ANALOG A0
#define SOUND_DIGITAL 2

Adafruit_MLX90614 mlx = Adafruit_MLX90614();

void setup() {
  Serial.begin(9600);
  mlx.begin();

  pinMode(TRIG_PIN, OUTPUT);
  pinMode(ECHO_PIN, INPUT);
  pinMode(LED_PIN, OUTPUT);
  pinMode(SOUND_DIGITAL, INPUT);

  Serial.println("Smart Sensor System Initialized");
}

void loop() {
  // --- Temperature ---
  float temperature = mlx.readObjectTempC();

  // --- Ultrasonic distance ---
  digitalWrite(TRIG_PIN, LOW);
  delayMicroseconds(2);
  digitalWrite(TRIG_PIN, HIGH);
  delayMicroseconds(10);
  digitalWrite(TRIG_PIN, LOW);

  long duration = pulseIn(ECHO_PIN, HIGH);
  float distanceMM = duration * 0.34 / 2; // in mm

  // --- Sound ---
  int soundAnalog = analogRead(SOUND_ANALOG);
  int soundDigital = digitalRead(SOUND_DIGITAL);

  // --- LED only ON if object within 50mm ---
  if (distanceMM > 0 && distanceMM <= 50) {
```

```
    digitalWrite(LED_PIN, HIGH);
    Serial.println("LED: GLOWING (Object within 50mm)");
  } else {
    digitalWrite(LED_PIN, LOW);
    Serial.println("LED: OFF (No object within 50mm)");
  }

  // --- Other sensor status ---
  Serial.print("Temperature: ");
  Serial.print(temperature);
  Serial.print(" °C | Sound Level (Analog): ");
  Serial.print(soundAnalog);

  if (soundDigital == HIGH) {
    Serial.println(" | Loud Sound Detected!");
  } else {
    Serial.println(" | No Loud Sound");
  }

  delay(500);
}
```