TEMPERATURE BASED FAN SPEED CONTROLLER

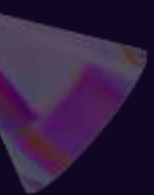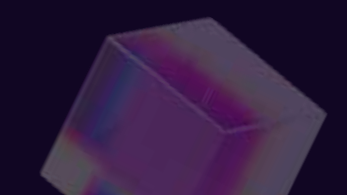| NAME	ID
SHOUMIK SARKAR	2211320042
ARPO ROY	2212656042
MD. FARHADUL HASAN NAYON	2212211042

OBJECTIVE

- To design an automatic fan speed control system that adjusts based on room temperature using Arduino UNO and DHT11 sensor.
- To promote energy efficiency and user convenience by eliminating the need for manual fan speed adjustment.
- To develop a low-cost and scalable solution suitable for smart home and small-scale industrial applications.
- To explore temperature-controlled automation for enhancing comfort in indoor environments.
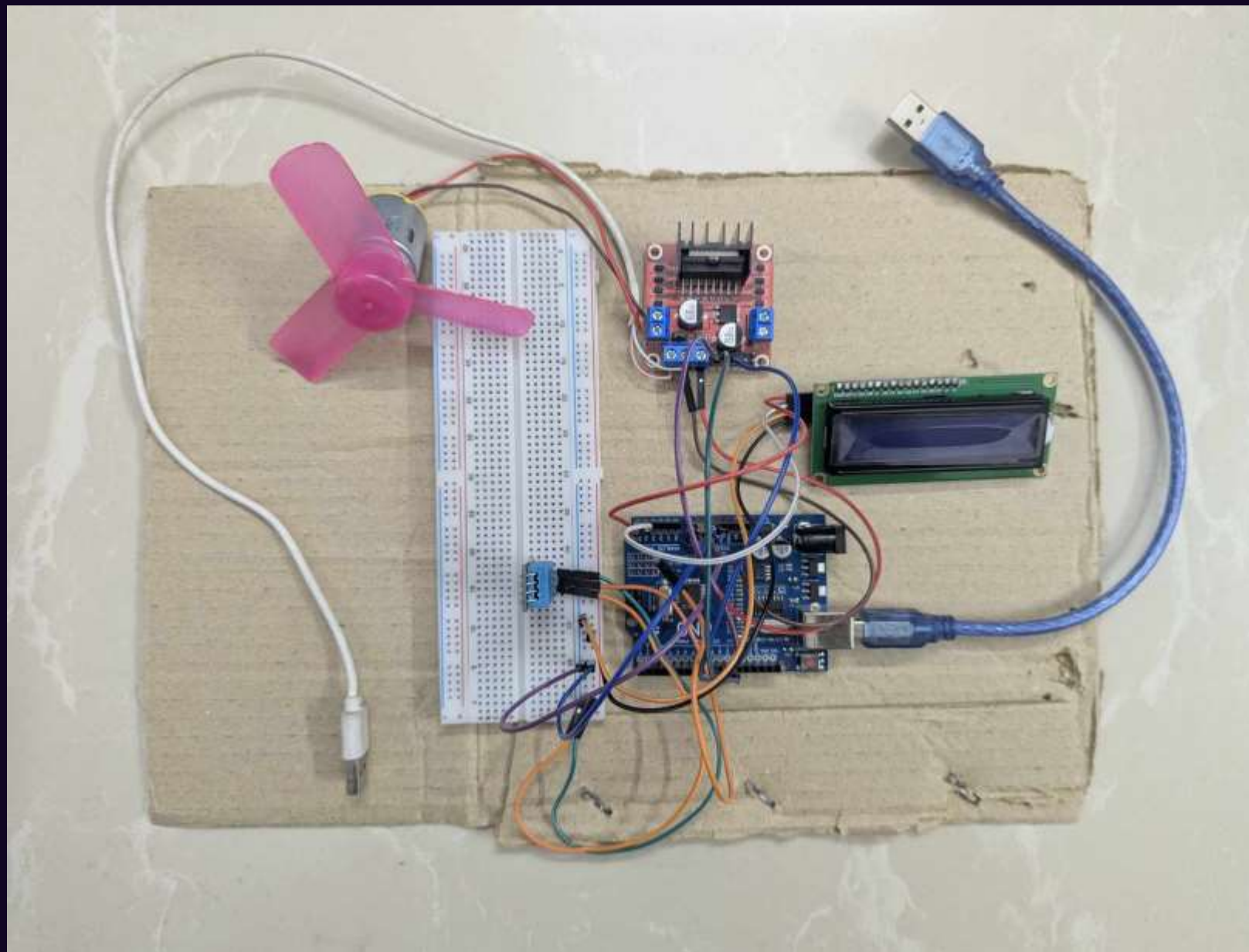
PROJECT DETAILS

HOW IT WORKS:

- DHT11 sensor reads the current room temperature.
- Arduino UNO processes the sensor data.
- Based on the temperature, Arduino generates appropriate PWM signals.
- These signals are sent to the L298N motor driver.
- The motor driver adjusts the fan speed accordingly.
- (Optional) OLED display shows the live temperature reading and fan speed.

PROJECT DETAILS

PROJECT PROTOTYPE

ARDUINO PROGRAM

```
void loop() {
  delay(2000); // Delay between readings (adjust as needed)

  float temperature = dht.readTemperature(); // Read temperature in Celsius
  if (isnan(temperature)) {
    Serial.println("Failed to read temperature from DHT sensor!");
    return;
  }

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

  lcd.setCursor(0, 1); // Set cursor to the second line
  lcd.print("              "); // Clear the previous motor speed

  // Adjust motor speed based on temperature
  if (temperature > TEMPERATURE_THRESHOLD1) {
    // Increase motor speed
    analogWrite(MOTOR_PIN_ENA, 255);    // Set the motor speed to maximum (255)
    digitalWrite(MOTOR_PIN_IN1, HIGH);  // Set motor direction (forward)
    digitalWrite(MOTOR_PIN_IN2, LOW);
    lcd.setCursor(0, 1);
    lcd.print("Motor Speed: Max");
  }
  else if (temperature > TEMPERATURE_THRESHOLD) {
    // Increase motor speed
    analogWrite(MOTOR_PIN_ENA, 100);    // Set the motor speed to a value (100)
    digitalWrite(MOTOR_PIN_IN1, HIGH);  // Set motor direction (forward)
    digitalWrite(MOTOR_PIN_IN2, LOW);
    lcd.setCursor(0, 1);
    lcd.print("Motor Speed: Med");
  }
  else {
    // Decrease motor speed
    analogWrite(MOTOR_PIN_ENA, 45);     // Set the motor speed to a lower value (45)
```
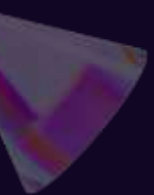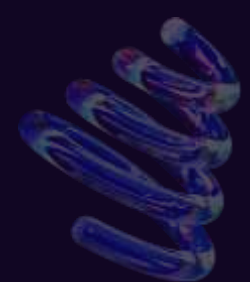
COST & BENEFITS

COMPONENT USED

1. Arduino UNO R3 - 570 taka
2. DHT11 temperature sensor – 180 taka
3. L298N motor driver - 180 taka
4. Wires - 90 taka

Total: 1020 taka

BENEFITS

- Energy-efficient and eco-friendly.
- Low-cost automation (one-time investment).
- Easy to install and portable.
- Ideal for modern smart homes.
- Can be further enhanced with Wi-Fi/Bluetooth modules.