الكلية التقنية الهندسية
قسم هندسة تقنيات الأجهزة الطبية

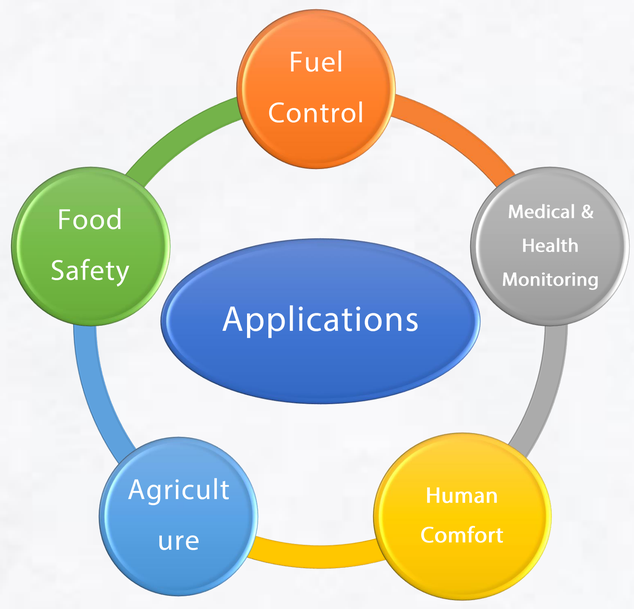
Design and Implementation of Real-Time Temperature and Humidity Sensor

SUPERVISOR : Lec. Dr. Taif Alawsi

STUDENT : Furqan Ali Abbas

ABSTRACT :

In this project, we implemented a circuit for the temperature and humidity monitoring of the environment and display it on the LCD screen which gives an updated reading every specific period. The goal of the project: To learn to use the temperature and humidity sensor to read and send data to the Arduino and work on data collection.



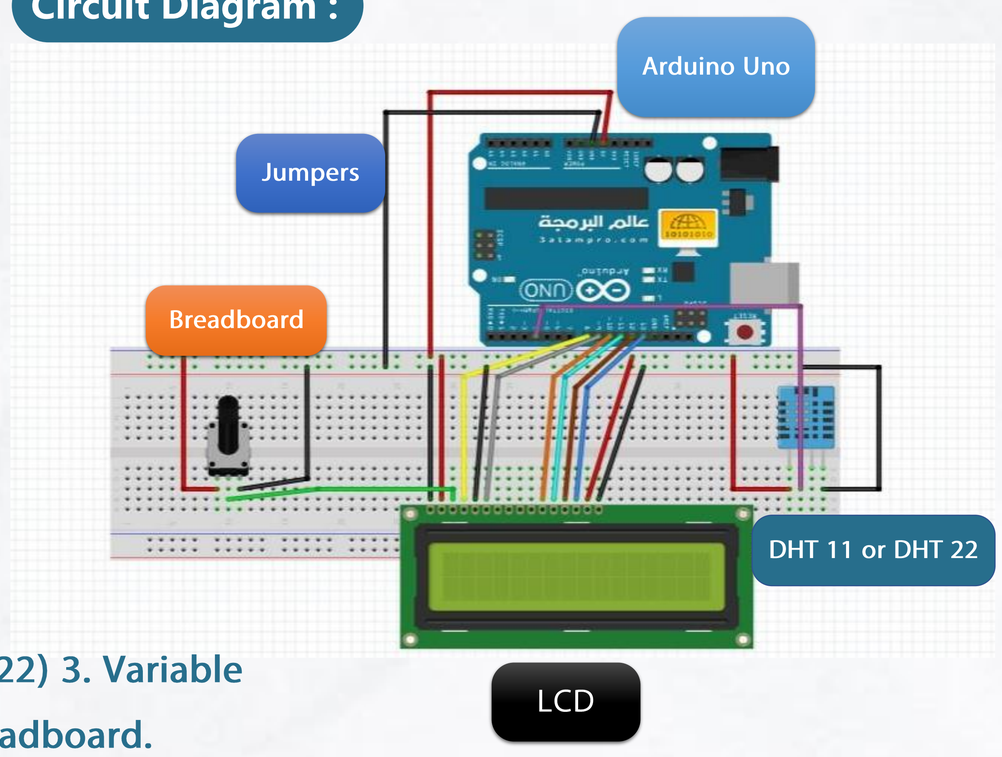
Operation :

The Arduino UNO and the DHT11 (temperature and humidity sensor) were employed for displaying the ambient temperature and humidity on the LCD screen. After connecting the wires as in the circuit diagram, the program will do all the work. A special library called "DHT" was download from the web and uploaded to Arduino.

Components :

1. Arduino Uno 2. Temperature and Humidity Sensor (DHT11 or DHT22) 3. Variable resistor 4. Liquid Crystal Display (LCD 2 * 16) 5. Jumper wires. 6. Breadboard.

Circuit Diagram :



DHT11

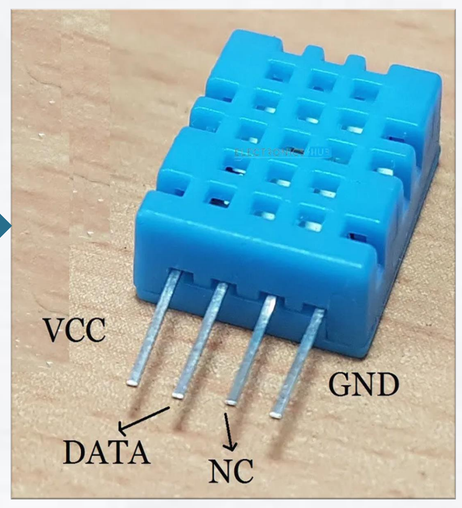
Code

```
#include <LiquidCrystal.h>
LiquidCrystal lcd(4, 5, 0, 1, 2, 3);
byte degree_symbol[8] =
                  {
                    0b00111,
                    0b00101,
                    0b00111,
                    0b00000,
                    0b00000,
                    0b00000,
                    0b00000,
                    0b00000
                  };
int gate=11;
volatile unsigned long duration=0;
unsigned char i[5];
unsigned int j[40];
unsigned char value=0;
unsigned answer=0;
int z=0;
int b=1;
void setup()
{

lcd.begin(16, 2);
 lcd.print("Temp = ");
 lcd.setCursor(0,1);
 lcd.print("Humidity = ");
 lcd.createChar(1, degree_symbol);
 lcd.setCursor(9,0);
 lcd.write(1);
 lcd.print("C");
 lcd.setCursor(13,1);
 lcd.print("%");
}

void loop()
{
```

DHT 11



References :

Hubert Henry Ward, 2022, Programming Arduino Projects with the PIC Microcontroller: A Line-by-Line Code Analysis and Complete Reference Guide for Embedded Programming in C, APress, USA.

Final Model :