

SMART WATER MANAGEMENT

CODE

```
include "RTCLib.h"
#include "DHT.h"

#define DHTPIN 8
#define DHTTYPE DHT22

DHT dht(DHTPIN, DHTTYPE);

#include <LiquidCrystal_I2C.h>
#define I2C_ADDR 0x27
#define LCD_COLUMNS 20
#define LCD_LINES 4

LiquidCrystal_I2C lcd(I2C_ADDR, LCD_COLUMNS, LCD_LINES);
String data;
int relay1=3;
int relay2=4;
int relay3=5;
int relay4=6;
RTC_DS1307 rtc;
char daysOfTheWeek[7][12] = {"Sunday", "Monday", "Tuesday", "Wednesday",
"Thursday", "Friday", "Saturday"};
void setup()
{ {
  Serial.begin(115200);
  Serial.println(F("DHT22 example!"));

  dht.begin();
}
{
  Serial.begin(115200);
  lcd.init();
  lcd.backlight();
  lcd.setCursor(3,0);
  lcd.print("welcome to");
  lcd.setCursor(2,1);
  lcd.print("SMART FARMING");
  delay(4000);
  pinMode(relay1, OUTPUT);
```

```

pinMode(relay2, OUTPUT);
pinMode(relay3, OUTPUT);
pinMode(relay4, OUTPUT);
Serial.println("welcome to my project");
delay(500);
if (! rtc.begin()) {
    Serial.println("Couldn't find RTC");
    Serial.flush();
    abort();
}
lcd.clear();

}

}

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

        // Check if any reads failed and exit early (to try again).
        if (isnan(temperature) || isnan(humidity)) {
            Serial.println(F("Failed to read from DHT sensor!"));
            return;
        }

        Serial.print(F("Humidity: "));
        Serial.print(humidity);
        Serial.print(F("%  Temperature: "));
        Serial.print(temperature);
        Serial.println(F("°C "));
        lcd.setCursor(0,3);
        lcd.print("temp:");
        lcd.println(temperature);
        lcd.setCursor(10,3);
        lcd.print("hum:");
        lcd.println(humidity);
        delay(2000);
    }
}

DateTime now = rtc.now();

```

```

Serial.print("Current time: ");
Serial.print(now.year(), DEC);
Serial.print('/');
Serial.print(now.month(), DEC);
Serial.print('/');
Serial.print(now.day(), DEC);
Serial.print(" (");
Serial.print(daysOfTheWeek[now.dayOfTheWeek()]);
Serial.print(") ");
Serial.print(now.hour(), DEC);
Serial.print(':');
Serial.print(now.minute(), DEC);
Serial.print(':');
Serial.print(now.second(), DEC);
Serial.println();
Serial.println();
delay(3000);
lcd.setCursor(3,0);
lcd.print("Time:");
lcd.print(now.hour(), DEC);
lcd.print(':');
lcd.print(now.minute(), DEC);
lcd.print(':');
lcd.print(now.second(), DEC);

if((now.second() > 1) && (now.second() < 15))
{
  lcd.setCursor(0,1);
  lcd.print("Relay1:ON ");

  Serial.println("relay1 is on");
  digitalWrite(relay1, HIGH);
}
else{
  lcd.setCursor(0,1);
  lcd.print("Relay1:Off");
  digitalWrite(relay1, LOW);
}

if((now.second() > 20) && (now.second() < 30))
{
  lcd.setCursor(10,1);
  lcd.print("Relay2:ON ");
  Serial.println("relay2 is on");
}

```

```

    digitalWrite(relay2, HIGH);
}
else{
    lcd.setCursor(10,1);
    lcd.print("Relay2:OFF");
    digitalWrite(relay2,LOW);
}
if((now.second()> 35) && (now.second()<45))
{
    lcd.setCursor(0,2);
    lcd.print("Relay3:ON ");
    Serial.println("relay3 is on");
    digitalWrite(relay3, HIGH);
}
else{
    lcd.setCursor(0,2);
    lcd.print("Relay3:OFF");
    digitalWrite(relay3,LOW);
}
if((now.second()> 50) && (now.second()<59))
{
    lcd.setCursor(10,2);
    lcd.print("Relay4:ON ");
    Serial.println("relay4 is on");
    digitalWrite(relay4, HIGH);
}
else{
    lcd.setCursor(10,2);
    lcd.print("Relay4:OFF");
    digitalWrite(relay4,LOW);
}
}

```

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23 void setup()
24 | { {
25 |   Serial.begin(115200);
26 |   Serial.println(F("DHT22 example!"));
27
28 |   dht.begin();
29 | }
30 {

```

Simulation

DHT22 example!
welcome to my project
Humidity: 40.00% Temperature: 24.00°C

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ENG 5:34 PM 10/15/2023

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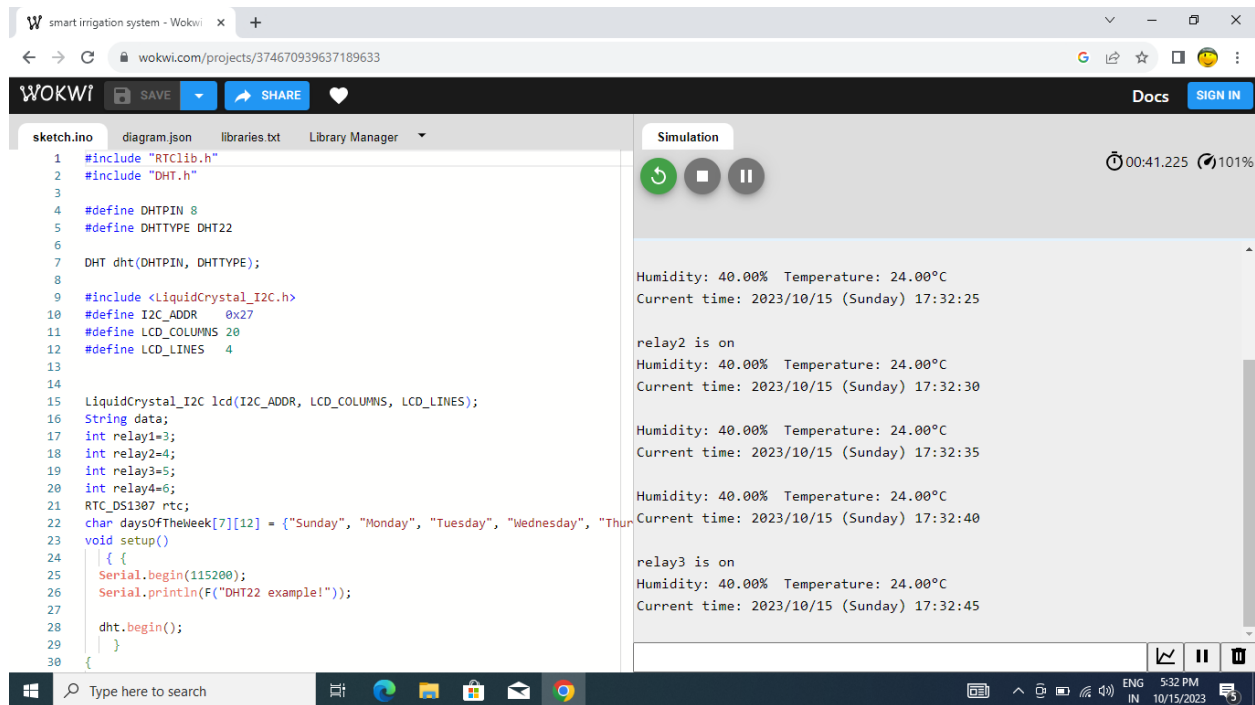
Simulation

DHT22 example!
welcome to my project
Humidity: 40.00% Temperature: 24.00°C
Current time: 2023/10/15 (Sunday) 17:32:15

Humidity: 40.00% Temperature: 24.00°C
Current time: 2023/10/15 (Sunday) 17:33:30

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COMPONENTS USED

- *DHT11 sensor
- *Soil Moisture sensor
- *Gsm Modem
- *ultrasonic sensor