

Project Delivery Sprint – 1

Date	29 September 2022
Team ID	PNT20212TMID39877
Project Name	Project – Smart Farmer - IoT Enabled Smart Farming Application

Code :

```
// Include Libraries

#include "Arduino.h"

#include "DHT.h"

#include "PIR.h"

#include "SoilMoisture.h"

#include "Pump.h"


// Pin Definitions

#define DHT_PIN_DATA 3

#define PIR_PIN_SIG    4

#define SOILMOISTURE_5V_PIN_SIG    A10

#define WATERPUMP_PIN_COIL1        2


// Global variables and defines

// object initialization

DHT dht(DHT_PIN_DATA);

PIR pir(PIR_PIN_SIG);

SoilMoisture soilMoisture_5v(SOILMOISTURE_5V_PIN_SIG);

Pump waterpump(WATERPUMP_PIN_COIL1);


// define vars for testing menu
```

```

const int timeout = 10000;    //define timeout of 10 sec

char menuOption = 0;

long time0;

// Setup the essentials for your circuit to work. It runs first every time your circuit is powered with
// electricity.

void setup()
{
    // Setup Serial which is useful for debugging
    // Use the Serial Monitor to view printed messages
    Serial.begin(9600);
    while (!Serial) ; // wait for serial port to connect. Needed for native USB
    Serial.println("start");
    dht.begin();
    menuOption = menu();
}

// Main logic of your circuit. It defines the interaction between the components you selected. After
// setup, it runs over and over again, in an eternal loop.

void loop()
{

    if(menuOption == '1') {
        // DHT22/11 Humidity and Temperature Sensor - Test Code
        // Reading humidity in %
        float dhtHumidity = dht.readHumidity();
        // Read temperature in Celsius, for Fahrenheit use .readTempF()
        float dhtTempC = dht.readTempC();
        Serial.print(F("Humidity: ")); Serial.print(dhtHumidity); Serial.print(F(" [%]\t"));
        Serial.print(F("Temp: ")); Serial.print(dhtTempC); Serial.println(F(" [C]"));
    }
}

```

```

    }

    else if(menuOption == '2') {
        // Infrared PIR Motion Sensor Module - Test Code

        bool pirVal = pir.read();

        Serial.print(F("Val: ")); Serial.println(pirVal);

    }

    else if(menuOption == '3') {
        // Soil Moisture Sensor - Test Code

        int soilMoisture_5vVal = soilMoisture_5v.read();

        Serial.print(F("Val: ")); Serial.println(soilMoisture_5vVal);

    }

    else if(menuOption == '4') {
        // Submersible Pool Water Pump - Test Code
        // The water pump will turn on and off for 2000ms (4 sec)
        waterpump.on(); // 1. turns on
        delay(2000);    // 2. waits 500 milliseconds (0.5 sec).
        waterpump.off();// 3. turns off
        delay(2000);    // 4. waits 500 milliseconds (0.5 sec).

    }

    if (millis() - time0 > timeout)
    {
        menuOption = menu();
    }

}

```

```

// Menu function for selecting the components to be tested
// Follow serial monitor for instructions
char menu()
{

    Serial.println(F("\nWhich component would you like to test?"));
    Serial.println(F("(1) DHT22/11 Humidity and Temperature Sensor"));
    Serial.println(F("(2) Infrared PIR Motion Sensor Module"));
    Serial.println(F("(3) Soil Moisture Sensor"));
    Serial.println(F("(4) Submersible Pool Water Pump"));
    Serial.println(F("(menu) send anything else or press on board reset button\n"));
    while (!Serial.available());

    // Read data from serial monitor if received
    while (Serial.available())
    {
        char c = Serial.read();
        if (isAlphaNumeric(c))
        {

            if(c == '1')
                Serial.println(F("Now Testing DHT22/11 Humidity and Temperature
Sensor"));
            else if(c == '2')
                Serial.println(F("Now Testing Infrared PIR Motion Sensor Module"));
            else if(c == '3')
                Serial.println(F("Now Testing Soil Moisture Sensor"));
            else if(c == '4')
                Serial.println(F("Now Testing Submersible Pool Water Pump"));
            else

```

```

{
    Serial.println(F("illegal input!"));
    return 0;
}

time0 = millis();
return c;
}
}
}

```

Circuit Diagram :

