

Project Delivery Sprint – 2

Date	30 September 2022
Team ID	PNT2022TMID54001
Project Name	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 :

