Project Delivery Sprint – 1

Date	30 September 2022
Team ID	PNT2022TMID31852
Project Name	Smart Farmer - IoT Enabled SmartFarming 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 instrcutions
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 :