Project Delivery Sprint – 1

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| Date | 16 November 2022 |
| Team ID | PNT20212TMID26870 |
| 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 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 :

