

Project Development Phase

Delivery of Sprint – 1

Date	11 November 2022
Team ID	PNT2022TMID05141
Project Name	Real-Time River Water Quality Monitoring and Control System

Connecting Sensors with Arduino using C++ code:

```
#include "Arduino.h"
#include "DHT.h"
#include "PIR.h"
#include "SoilMoisture.h"
#include "Pump.h"
#define DHT_PIN_DATA 3
#define PIR_PIN_SIG 4
#define SOILMOISTURE_5V_PIN_SIG A10 #define WATERPUMP_PIN_COIL1 2
DHT dht(DHT_PIN_DATA); PIR pir(PIR_PIN_SIG);
SoilMoisture soilMoisture_5v(SOILMOISTURE_5V_PIN_SIG);
Pump waterpump(WATERPUMP_PIN_COIL1);
const int timeout = 10000;
char menuOption = 0;
long time0;
void setup(){
  Serial.begin(9600);
  while (!Serial) ;
  Serial.println("start");
  dht.begin();
  menuOption = menu();
}
void loop(){
  if(menuOption == '1') {
    float dhtHumidity = dht.readHumidity();
    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') {
    bool pirVal = pir.read();
    Serial.print(F("Val: "));
    Serial.println(pirVal);
}
else if(menuOption == '3') {
    int soilMoisture_5vVal = soilMoisture_5v.read();
    Serial.print(F("Val: "));
    Serial.println(soilMoisture_5vVal);
}
else if(menuOption == '4') {
    waterpump.on(); delay(2000);
    waterpump.off(); delay(2000);
}

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

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());
    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:

