Project Development Phase

Delivery of Sprint – 1

Team ID	PTN2022TMID16162
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: