**Project Development Phase Delivery of Sprint – 1**

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| Date | 10 November 2022 |
| Team ID | PNT2022TMID51261 |
| 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:**

