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#include <WiFi.h>
#include <Wire.h>
#include <MPU6050.h>
#include <Adafruit_BMP280.h>

// Define the pins for the pressure sensors
#define SENSOR_1_PIN 18
#define SENSOR_2_PIN 5
#define SENSOR_3_PIN 17
#define SENSOR_4_PIN 16

// Create an array of Adafruit_BMP280 objects to read the pressure sensors
Adafruit_BMP280 sensors[4];

MPU6050 mpu6050;

const char* WIFI_SSID = "your_SSID"; // Change this to your WiFi SSID
const char* WIFI_PASSWORD = "your_PASSWORD"; // Change this to your WiFi password

const int POTENTIOMETER_PIN = 15; // Change this to the pin number where your potentiometer is connected
const int SOLENOID_PIN = 4; // Change this to the pin number where your solenoid is connected
const int LASER_PIN = 2; // Change this to the pin number where your laser sensor is connected
const int SWITCH_PIN_1 = 13;
const int SWITCH_PIN_2 = 32;

// Initialize counter to zero
int counter = 0;

WiFiClient wifiClient;
const char* SERVER_IP = "your_SERVER_IP"; // Change this to the IP address of the server to send data to
const int SERVER_PORT = 1234; // Change this to the port number of the server to send data to

void setup() {

  Serial.begin(115200);
  Wire.begin();
  mpu6050.initialize();
  pinMode(SWITCH_PIN_2, INPUT_PULLUP);

  // Initialize the pressure sensors
  sensors[0].begin(0x76, &Wire);
  sensors[1].begin(0x77, &Wire);
  sensors[2].begin(0x78, &Wire);
  sensors[3].begin(0x79, &Wire);

  pinMode(SWITCH_PIN_1, INPUT);
  pinMode(POTENTIOMETER_PIN, INPUT);

  WiFi.begin(WIFI_SSID, WIFI_PASSWORD);
  while (WiFi.status() != WL_CONNECTED) {
    delay(1000);
    Serial.println("Connecting to WiFi...");
  }
  Serial.println("Connected to WiFi.");
}

void loop() {
  Vector3 gyro = mpu6050.getRotation();
  int switchStatel = digitalRead(SWITCH_PIN_1);

  // Read the pressure sensor data
  float pressure1 = sensors[0].readPressure() / 100.0;
  float pressure2 = sensors[1].readPressure() / 100.0;
  float pressure3 = sensors[2].readPressure() / 100.0;
  float pressure4 = sensors[3].readPressure() / 100.0;

  // Wait for switch to be in low state
  while (digitalRead(SWITCH_PIN_2) == HIGH) {
    delay(10);
  }

  // Loop indefinitely, counting rising edges of the switch
  while (true) {
    // Wait for rising edge of switch
    while (digitalRead(SWITCH_PIN_2) == LOW) {
      delay(10);
    }
    while (digitalRead(SWITCH_PIN_2) == HIGH) {
      delay(10);
    }
    // Increment counter and print current count
    counter++;

    // Print the pressure sensor data to the serial monitor
    Serial.printf("Pressure values: %.2f hPa, %.2f hPa, %.2f hPa, %.2f hPa\n", pressure1, pressure2, pressure3, pressure4);

    Serial.printf("Gyroscope values: X=%.2f Y=%.2f Z=%.2f\n", gyro.x, gyro.y, gyro.z);

    int potentiometerValue = analogRead(POTENTIOMETER_PIN);
    Serial.printf("Potentiometer value: %d\n", potentiometerValue);
    if (potentiometerValue > 650) {
      processPotValue(potentiometerValue);
    }

    sendData(gyro, potentiometerValue, pressure1, pressure2, pressure3, pressure4, switchStatel, counter);

    delay(1000);
  }
}

void processPotValue(int value) {
  if (value) {
    pinMode(SOLENOID_PIN, HIGH);
    pinMode(LASER_PIN, HIGH);
  }
}

void sendData(Vector3 gyro, int potentiometerValue, float pressure1, float pressure2, float pressure3, float pressure4, int switchStatel, int counter) {
  if (wifiClient.connect(SERVER_IP, SERVER_PORT)) {
    wifiClient.printf("%.2f,%.2f,%.2f,%d,%.2f,%.2f,%.2f,%.2f,%d,%d\n", gyro.x, gyro.y, gyro.z, potentiometerValue, pressure1, pressure2, pressure3, pressure4, switchStatel, counter);
    wifiClient.stop();
  }
}

```

