SPRINT-1

Team ID	PNT2022TMID53651
Project Name	Project - Industry Specific Intelligent Fire
	Management system

CONFIGURING ESP32 USING WOKWI PROJECTS

PROGRAM:

```
#include "DHTesp.h"
#include <cstdlib>
#include <time.h>
const int DHT_PIN = 15;
bool is_exhaust_fan_on = false;
bool is_sprinkler_on = false;
float temperature = 0;
int gas_ppm = 0;
int flame = 0;
int flow = 0;
String flame_status = "";
String accident_status = "";
String sprinkler_status = "";
DHTesp dhtSensor;
void setup() {
 Serial.begin(99900);
 /**** sensor pin setups ****/
 dhtSensor.setup(DHT_PIN, DHTesp::DHT22);
      working of the devices as physical or simulated devices are not
      available.
void loop() {
 TempAndHumidity data = dhtSensor.getTempAndHumidity();
```

```
//setting a random seed
  srand(time(0));
 //initial variable activities like declaring , assigning
 temperature = data.temperature;
 gas_ppm = rand()%1000;
  int flamereading = rand()%1024;
 flame = map(flamereading, 0, 1024, 0, 1024);
  int flamerange = map(flamereading,0,1024,0,3);
  int flow = ((rand()%100)>50?1:0);
 //set a flame status based on how close it is.....
 switch (flamerange) {
            // A fire closer than 1.5 feet away.
 case 2:
   flame status = "Close Fire";
   break:
 case 1:
   flame_status = "Distant Fire";
 case 0: // No fire detected.
   flame_status = "No Fire";
   break:
 if(gas_ppm > 100){
    is_exhaust_fan_on = true;
 else{
   is_exhaust_fan_on = false;
activities
 if(temperature < 40 && flamerange ==2){</pre>
    accident_status = "need auditing";
   is_sprinkler_on = false;
 else if(temperature < 40 && flamerange ==0){</pre>
    accident_status = "not found";
    is_sprinkler_on = false;
 else if(temperature > 50 && flamerange == 1){
    is_sprinkler_on = true;
    accident_status = "moderate";
 else if(temperature > 55 && flamerange == 2){
```

```
is_sprinkler_on = true;
    accident status = "severe";
 }else{
    is sprinkler on = false;
    accident status = "none";
 if(is_sprinkler_on){
    if(flow){
      sprinkler_status = "working";
   else{
      sprinkler_status = "not working";
 else if(is_sprinkler_on == false){
   sprinkler_status = "it should not!";
 else{
    sprinkler_status = "Error!!";
future sprints
 String out = "{\n\t\"senor_values\":{";
 out+="\n\t\t\"gas_ppm\":"+String(gas_ppm)+",";
 out+="\n\t\\"temperature\":"+String(temperature,2)+",";
 out+="\n\t\t\"flame\":"+String(flame)+",";
 out+="\n\t\t\"flow\":"+String(flow)+",\n\t}";
 out+="\n\t\"output\":{";
 out+="\n\t\\"is_exhaust_fan_on\":"+String((is_exhaust_fan_on)?"true":"false
")+",";
 out+="\n\t\t\"is_sprinkler_on\":"+String((is_sprinkler_on)?"true":"false")+"
 out+="\n\t\}";
 out+="\n\t\"messages\":{";
 out+="\n\t\t\"fire status\":"+flame status+",";
 out+="\n\t\t\"flow status\":"+sprinkler status+",";
 out+="\n\t\t\"accident_status\":"+accident_status+",";
 out+="\n\t}";
 out+="\n}";
 Serial.println(out);
 delay(2000);
```

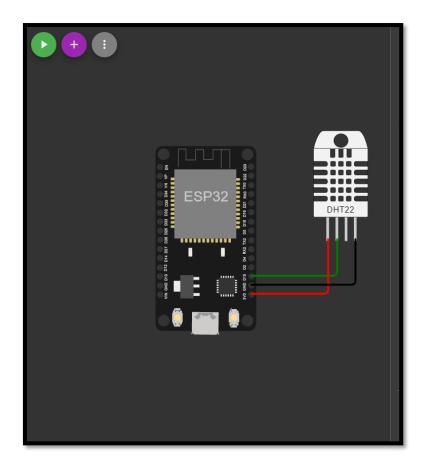
DIAGRAM.JSON

LIBRARIES

```
sketch.ino diagram.json libraries.txt Library Manager

1  # Wokwi Library List
2  # See https://docs.wokwi.com/guides/libraries
3
4  DHT sensor library for ESPX
5  ArduinoJson
```

CIRCUIT



OUTPUT:

WOKWI LINK

https://wokwi.com/projects/348100488201241172