INDUSTRY-SPECIFIC INTELLIGENT FIRE MANAGEMENT SYSTEM

Team ID - PNT2022TMID45189

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Agenda

- PROJECT OBJECTIVE
- PROBLEM STATEMENT
- PROPOSED SOLUTIONS
- TECHNICAL ARCHITECTURE
- WORKING PROCESS OF THE PROJECT
- ADVANTAGES
- FUTURE SCOPE

PROJECT OBJECTIVE

A **fire alarm system** warns people when smoke, fire, carbon monoxide or other fire-related or general notification emergencies are detected. These alarms may be activated automatically from smoke detectors and heat detectors or may also be activated via manual fire alarm activation devices such as manual call points or pull stations. Alarms can be either motorized bells or wall mountable sounders or horns.

PROBLEM STATEMENT

- **We need to design a fire alarm system that all family members can use in single-family residences**.
- It must be able to detect fires at all locations, residents must be able to activate it from convenient locations themselves, and it must alert residents in all portions of the house.

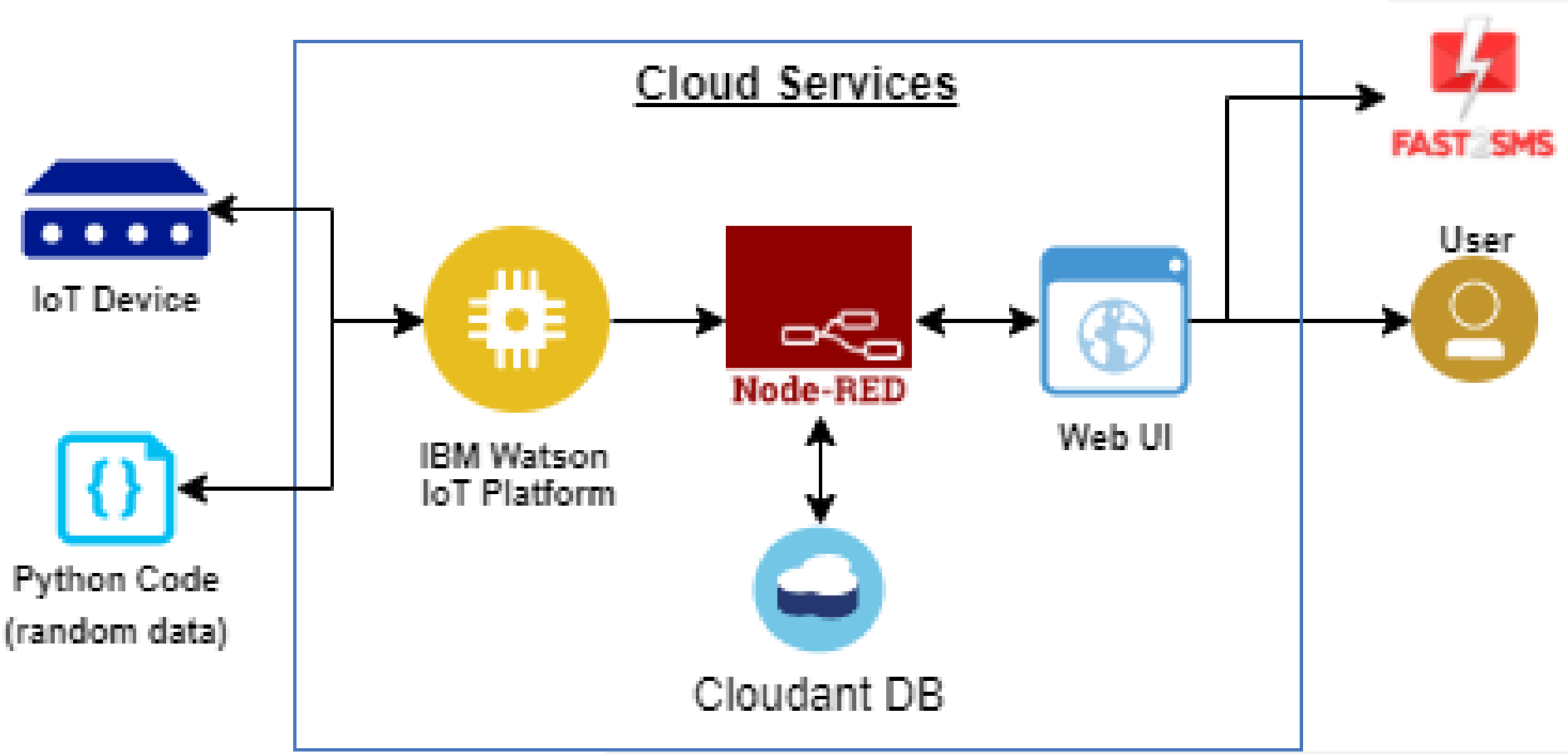
PROPOSED SOLUTIONS

- The task of a fire-fighting system is to early detect and minimise the consequences of a fire, and thus protect people and property. Simple fire-fighting systems consist of a fire and smoke detector, a control panel and fixed fire-fighting systems, e.g. a system of pipes filled with an extinguishing agent and provided with outlet nozzles.
- Fire-fighting systems may be divided into four main types, depending on the applied extinguishing agent: water, water mist, foam and gas extinguishing systems.

FUNCTIONAL REQUIREMENT

FUNCTIONAL REQUIREMENT (EPIC)	SUB REQUIREMENT (STORY / SUB – TASK)
IOT devices	Sensor and Wi-Fi module
Software	Web UI, Node-RED, IBM WATSON, MIT APP

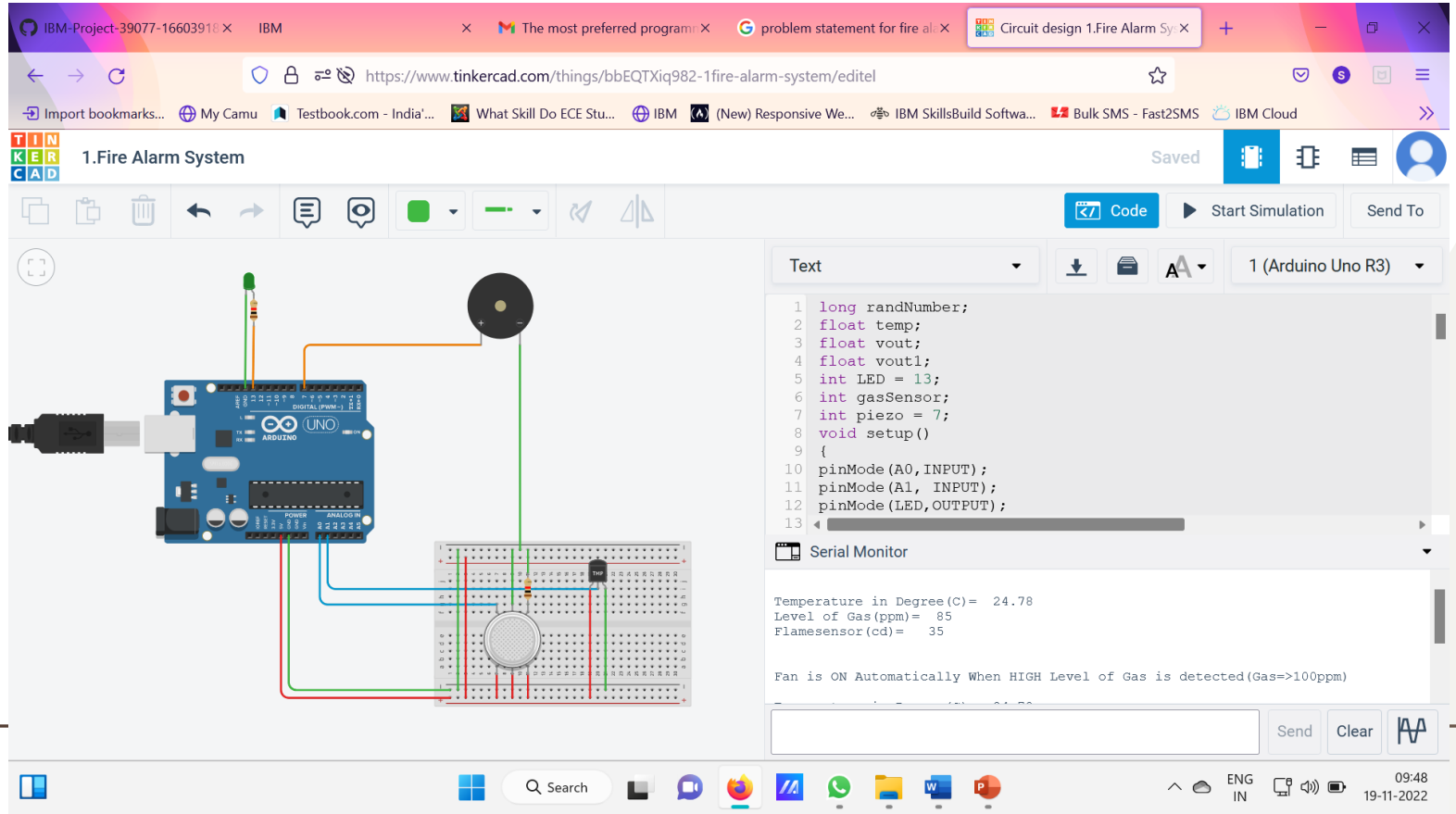
TECHNICAL ARCHITECTURE



WORKING PROCESS OF THE PROJECT

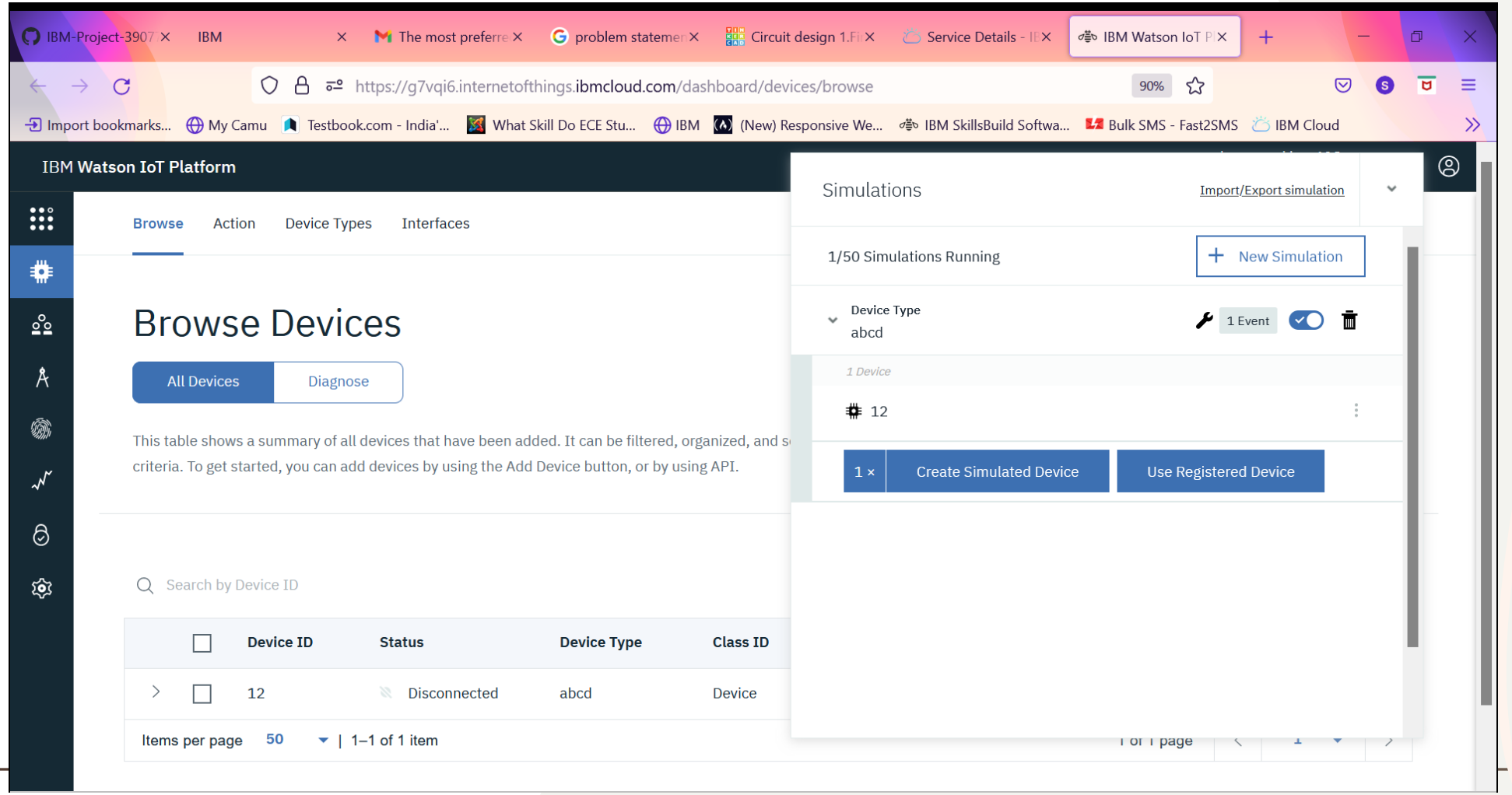
Step 1

- Simulation Creation (Connect sensor Arduino with Python code)
- Using the Tinkercard Software create and simulate the model Smart Farmer – IOT Enabled Smart Farming Application

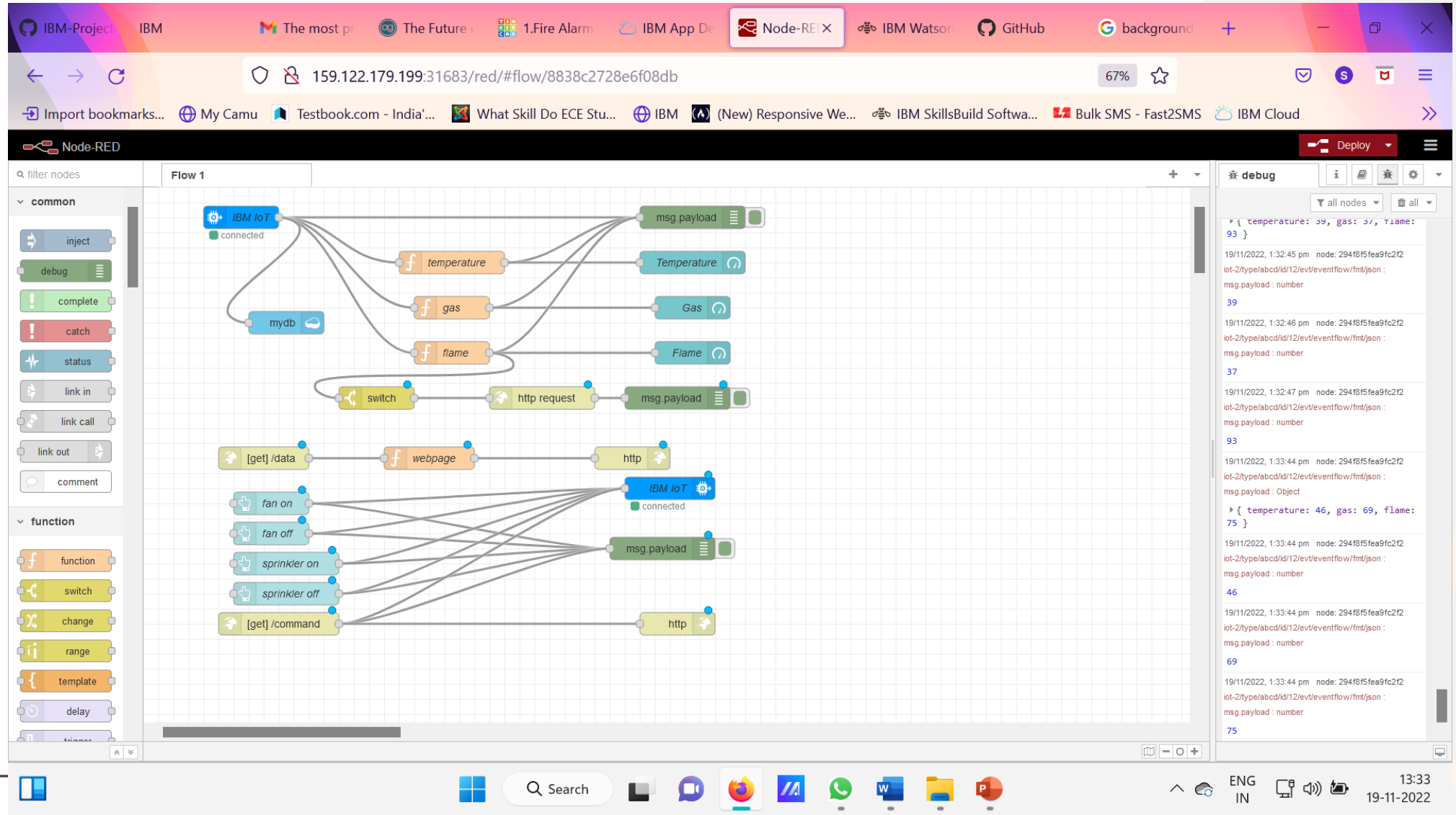


Step 2

- Software (Create device in the IoT Watson platform, workflow for IoT scenarios using Node-Red)

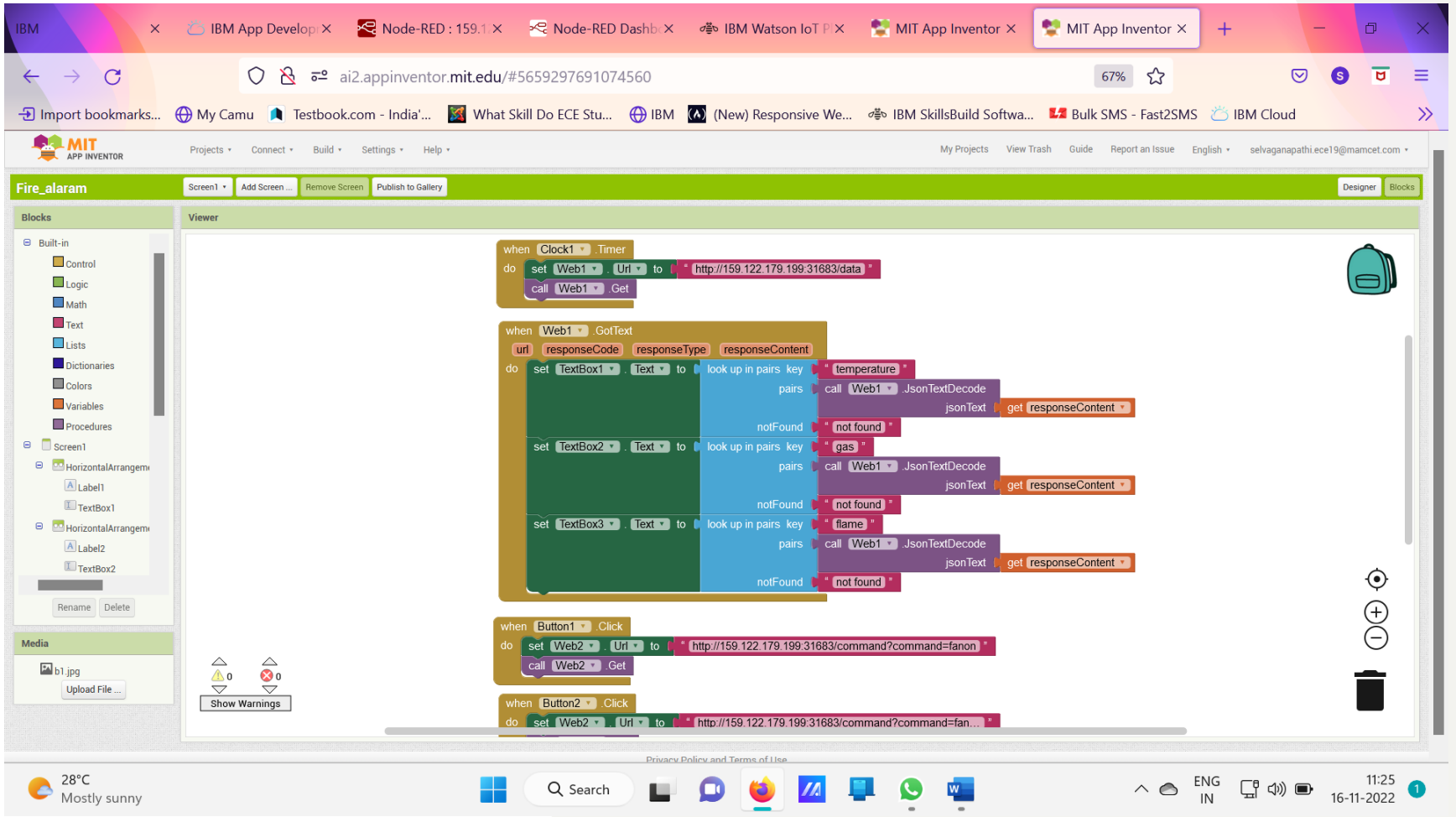


IOT using Node - red



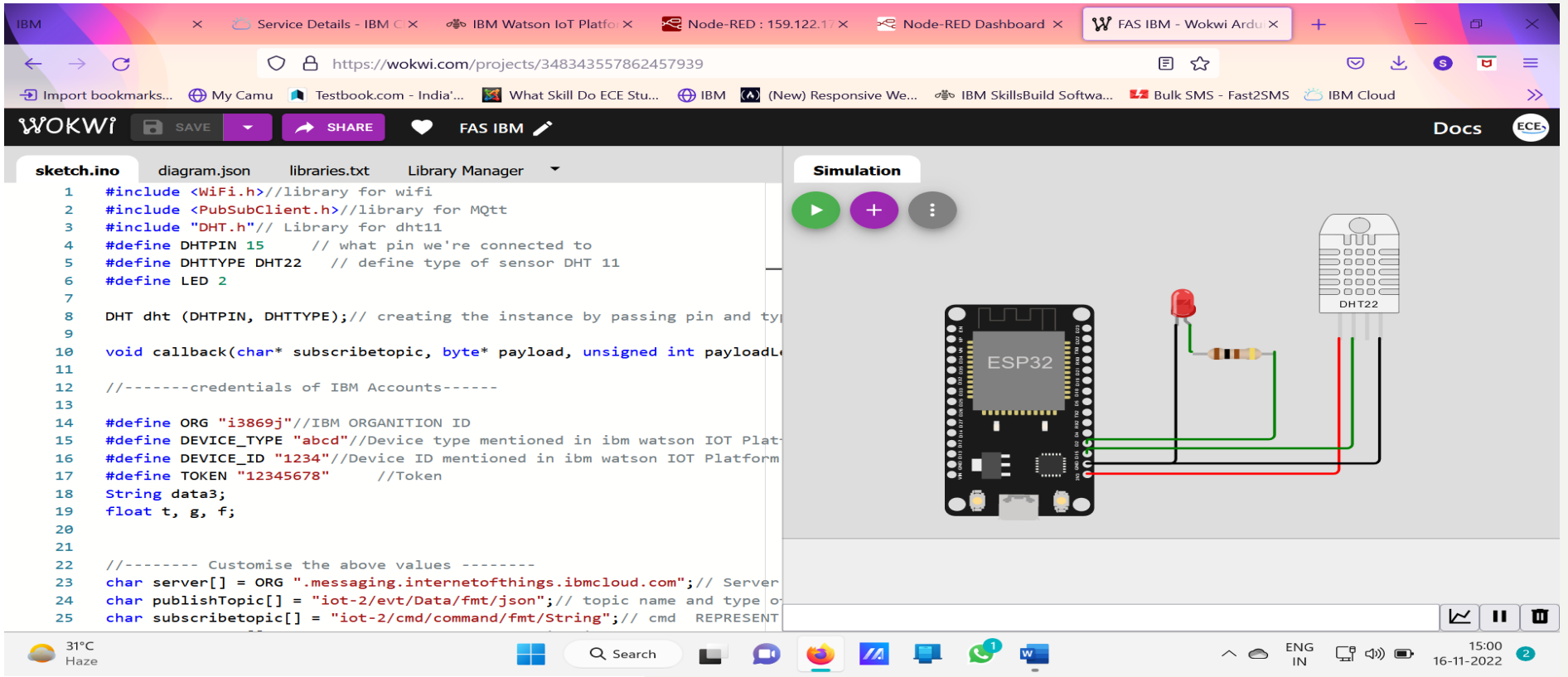
Step 3

- MIT App Inventor, Dashboard (Application for your project using MIT App, Design the model and test the App)

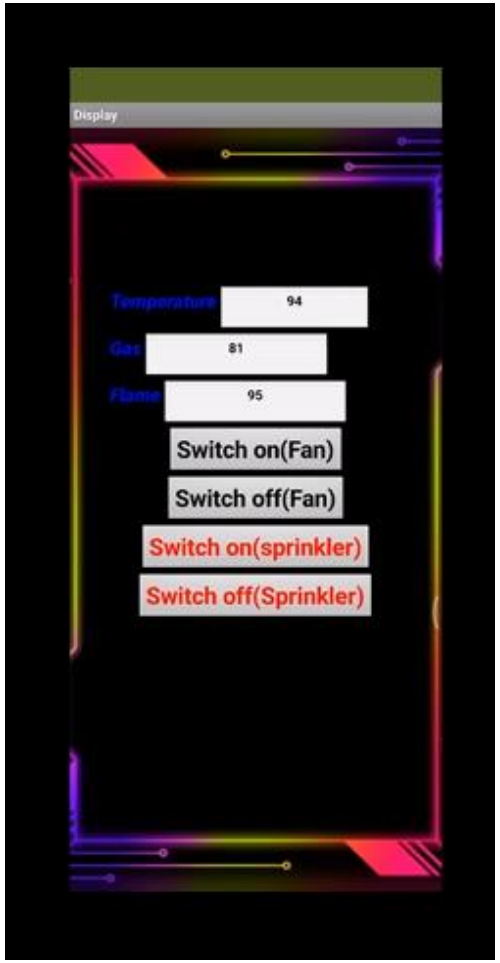


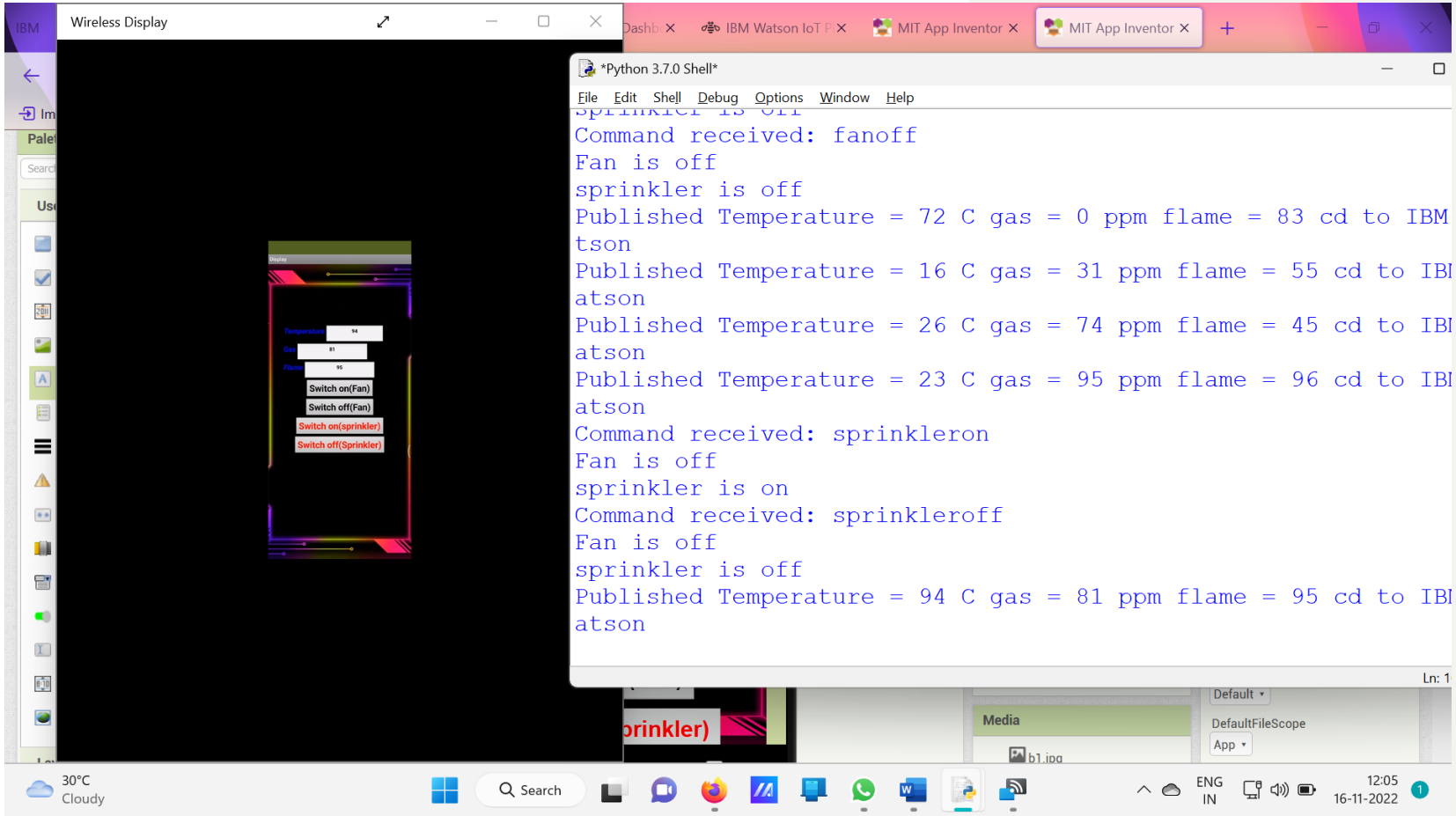
Step 4

- Web UI (to make the user interact with the software) / Run a simulation using the wokwi online platform



Mobile Application Output Using MIT invetor





ADVANTAGES

- Active monitoring for gas leakage and fire breakout.
- Automatic alerting of admin as well as fire authorities using SMS.
- Automatically turning on/off sprinkler as well as exhaust fan.
- Authentication is required to turn on/off of sprinkler and exhaust fan as well as sending SMS alert manually.
- It automatically detect false fire breakout reducing unnecessary panic by using flow sensors we can confirm that the sprinkler system is working as it intended, All device status can be shown in a dashboard
- Users can see the dashboard using a web application

FUTURE SCOPE

Fire detection technologies have been slow to evolve compared to rapidly advancing smart devices. Understandably, global companies focus their efforts on developing high-return products, **Sensor-Assisted Fire Fighting**, **High-Pressure Water Mist, Drones, Fireballs, these are the upcoming technologies in the fire alarm system.**

REFERENCE

- ✓https://www.tinkercad.com/things/bbEQTXiq982
- ✓https://wokwi.com/projects/348343557862457939
- ✓https://github.com/IBM-EPBL/IBM-Project-44952-1660727584

THANK YOU …,