

GAS LEAKAGE MONITORING AND ALTERING AND SYSTEM FOR INDUSRIES

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Team ID	PNT2022TMID47518
Project Name	Project – IOT based gas leakage monitoring and altering system for industries
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ABSTRACT:

Internet of Things (IOT) is the networking of ‘things’ by which physical things can communicate with the help of sensors, electronics, software, and connectivity. These systems do not require any human interaction. Internet of Things aim towards making life simpler by automating every small task around us. As much as IOT helping in automating tasks, the benefits of IOT can also be extended for enhancing the existing safety standards. Safety plays a major role in today’s world and it is necessary that good safety systems are to be implemented in places of education and work. This work modifies the existing safety model installed in industries and this system can also be used in homes and offices. The traditional Gas Leakage Detector Systems though have great precision, fail to acknowledge a few factors in the field of alerting the people about the leakage. Therefore we have used the IOT technology to make a Gas Leakage Detector for society which having Smart Alerting techniques involving sending.

INTRODUCTION:

The Internet of Things is an emerging topic of technical, social, and economic significance. Consumer products, durable goods, cars and trucks, industrial and utility components, sensors, and other everyday objects are being combined with Internet connectivity and powerful data analytic capabilities that promise to transform the way we work, live, and play.

Projections for the impact of IoT on the Internet and economy are impressive, with some anticipating as many as 100 billion connected IoT devices and a global economic impact of more than \$11 trillion by 2025. The Internet of Things (IoT) is an important topic in technology industry, policy, and engineering circles. This technology is embodied in a wide spectrum of networked products, systems, and sensors, which take advantage of advancements in computing power, electronics miniaturization, and network interconnections to offer new capabilities. The large-scale implementation of IoT devices promises to transform many aspects of the way we live. For consumers, new IoT products like Internet-enabled appliances, home automation components, and energy management devices are moving us toward a vision of the “smart home”, offering more security and energy efficiency. IoT systems like networked vehicles, intelligent traffic systems, and sensors embedded in roads and bridges move us closer to the idea of “smart cities”, which help minimize congestion and energy consumption. IoT technology offers the possibility to transform agriculture, industry, and energy production and distribution by increasing the availability of information.

LITERATURE SURVEY:

A number of reviews on the subject of gas leakage detection techniques were done in the past either as part of research papers/technical reports on a certain leak detection method and other gas related subjects

A.Mahalingam,r.T. Naayagi,n.E. Mastorakis ; they introduce design and implementation of an economic gasleakage detector. They gave the formulation of many problems in previous gas leakage detectors. They toldthatseveral standards have been formulated for the design of a gas leakage detection system such as IEEE, BS5730and IEC.For this work, the recommended UK safety standards have been adopted. The proposed alarmsystemismainly meant to detect LPG leakage, which is most commonly used in residential and commercial premises. Thesystem detects not only the presence of gas (gas leak), but also the amount of leakage in the air, and accordingly raises an appropriate audio visual alarm. The objective of the system is to detect LPG gases such as propane andbutane. The allowed UK level for butane is 600 ppm above which it is considered to be of high level and poses adanger. The proposed system ensures a continuous monitoring of the gas levels. If the gas level increases above the normalthreshold level of 400 ppm butane (LPG), the system starts to issue early warning alarms at 100ms interval, whichimplies low level gas leakage. If the leakage level increases to 575 ppm of butane (LPG), the systemactivates highseverity audio alarms at 50 ms intervals warning the occupants to run to safety.

P.Meenakshi Vidya, S.Abinaya, G.Geetha Rajeshwari, N.Guna,“ Automatic LPG detection and hazardcontrolling” published in April 2014 published in April 2014 proposed the leakage detection and real time gasmonitoring system. In this system, the gas leakage is detected and controlled by means of exhaust fan. The level ofLPG in cylinder is also continuously monitored.

Pal-Stefan Murvaya, Ioan Sileaa, 2008, they told in their survey on gas leak detection and localization techniques various ways to detect the gas leakage. They introduce some old or new technique to detect the gas. The proposed techniques in their paper are non-technical methods, hardware-based methods which include acoustic methods, optical methods and active methods.

In their survey they told a wide variety of leak detecting techniques is available for gas pipelines. Some techniques have been improved since their first proposal and some new ones were designed as a result of advances in sensor manufacturing and computing power. However, each detection method comes with its advantages and disadvantages. Leak detection techniques in each category share some advantages and disadvantages. For example, all external techniques which involve detection done from outside the pipeline by visual observation or portable detectors are able to detect very small leaks and the leak location, but the detection time is very long. Methods based on the mathematical model of the pipe have good results at high flow rates while at low flow rates a mass balance-based detection system would be more suitable. This disadvantage is prone to disappear for some of these techniques due to forthcoming technological advancements. [3]

Srinivasan, Leela, Jeyabharathi, Kirthik, Rajasree; in this research paper they told about gas leakage detection and control. In this paper, the gas leakage resulting into fatal inferno has become a serious problem in household and other areas where household gas is handled and used. It alerts the subscriber through the alarm and the status display besides turning off the gas supply valve as a primary safety measure. [4]

Falohun A.S., Oke A.O., and Abolaji B.M. 2016, in this paper they proposed their dangerous gas detection using an integrated circuit and MQ-9. In this basically, they used an embedded design which includes typical input and output devices include switches, relays, solenoids, LEDs, small or custom LCD displays, radio frequency devices, and sensors for data such as temperature, humidity, light level etc. Embedded systems usually have no keyboard, screen, disks, printers, or other recognizable I/O devices of a personal computer, and may lack human interaction device. The amount and type of detectors and the type of fire alarm system that one chooses for property protection will depend on the owner's property protection goals, the value of the property and the requirements of the owner's insurance company. Generally, heat detection will be used in all areas that are not considered high value. Here again, one of the most common mistakes in fire alarm generally, heat detection will be used in all areas that are not considered high value. Here again, one of the most common mistakes in fire alarm system application is to provide partial protection of a building and expect high performance from the installed systems of any kind. System application is to provide partial protection of a building and expect high performance from the installed systems of any kind. [5]

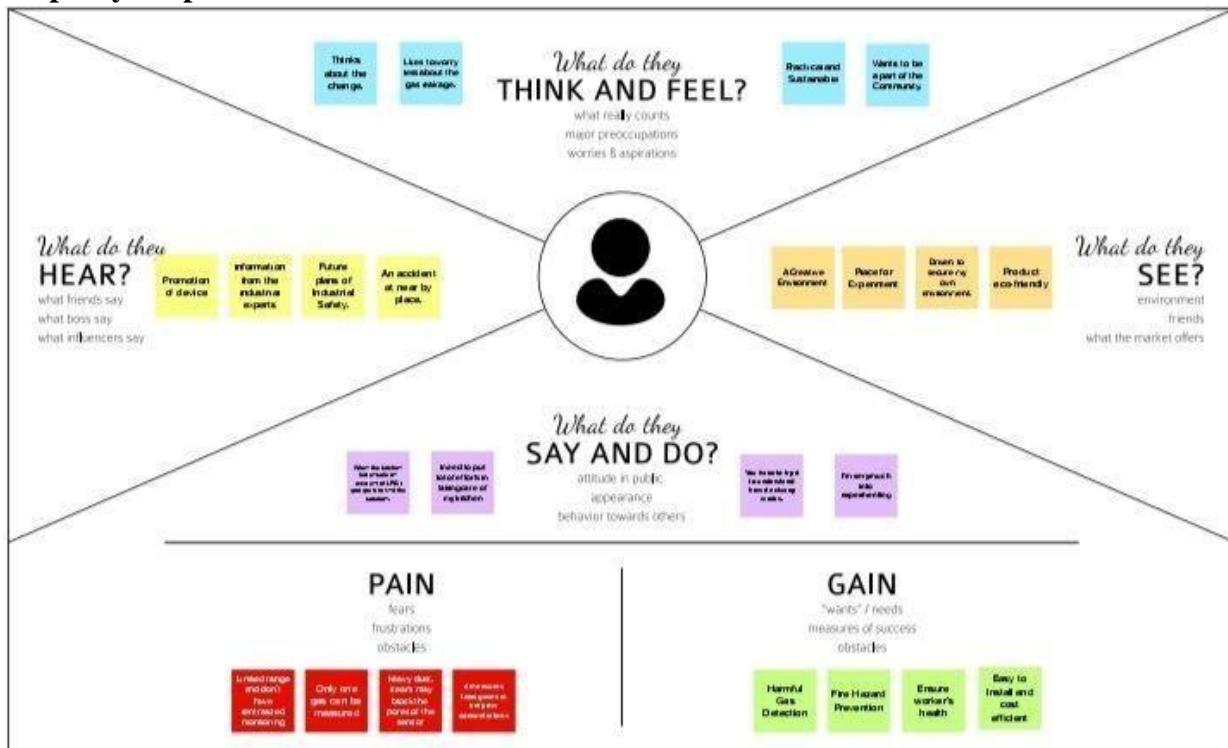
Hina Ruqsar, Chandana R , Nandini R , Dr. T P Surekha , have proposed a system that along with monitoring and detection of gas leakage, real time data is made available through real time feed over internet. They have used Xively IOT platform to provide real time sensor data over the interne value chain of production using networked sensors.

CONSLUSION:

Internet of Things is a new revolution of the Internet & it is a key research topic for researcher in embedded, computer science & information technology area due to its very diverse area of application & heterogeneous mixture of various communications and embedded technology in its architecture. In our modern scenario the usage of LPG has increased in a greater manner. As a result of this, the damages caused by the leakage of gas is increasing day by day. So as to eradicate this problem we are introducing highly advanced system known as Internet Of Things(IOT) . It is used in wide range of applications in present day society and introducing a vast scope to the future. Our proposed system is more effective and eco friendly due to the reason of detecting the leakage of gas and controlling the gas valve. So it is mainly designed for the safety of people and property. Using IOT , it also allows us to book the gas from the gas agency , when the weight of the gas cylinder reduces below a threshold value . Thus people could easily use their time effectively. It also uses to alert the consumers about the wastage of gas while removing the utensils from the burner by using an object detection sensor

Ideation Phase Empathize & Discover

Empathy Map Canvas:



Proposed Solution Template:

Project team shall fill the following information in proposed solution template.

S.No	Parameter	Description
1	Problem Statement (Problem to be solved)	<ul style="list-style-type: none"><input type="checkbox"/> In the project helps the industries identify the gas leakage<input type="checkbox"/> They have certain weakness that make the glass leakage occur.<input type="checkbox"/> This system will help to detect the presence of gas leakage.
2.	Idea / Solution description	<ul style="list-style-type: none"><input type="checkbox"/> The gas detection sensors are installed strategically on different location for real time monitoring.<input type="checkbox"/> A gas monitoring solution not only detects toxic gases but also identifies changes in air quality.
3.	Novelty / Uniqueness	<ul style="list-style-type: none">The device is user friendly<input type="checkbox"/> Design novelty correlates mainly to the purpose and context of the produced combinations.<input type="checkbox"/> Novelty is aided by little not by briefs.

4.	Social Impact / Customer Satisfaction	<ul style="list-style-type: none"> <input type="checkbox"/> The statistics underscore the challenge of producing quality vehicles while satisfying customer. That product quality and customer satisfaction associated with the cost and safety. <input type="checkbox"/> Workers with irrespective of fear of gas leakage.
5.	Business Model (Revenue Model)	<ul style="list-style-type: none"> <input type="checkbox"/> As the product usage can be understood by everyone, it is easy for them to use it properly for their safest organization.
6.	Scalability of the Solution	<ul style="list-style-type: none"> <input type="checkbox"/> Gas leakage is more sensitivity and accuracy for the workers efficiency.

Project Design Phase-I - Solution Fit

Define CS, fit int o C C	CS 1. CUSTOMER SEG-MENT(S) Most of the Industry workers are Engaged with gases related production.	CC 6. CUSTOMER CON-STRAINTS It measures a toxic gases in very low concentration s has ability to detect wide level of gas.	AS 5. AVAILABLE SO-LUTIONS Real time gas monitors can overcome delayed response times to such gas leaks. Test benches, quick connectors, leak tester, are some of the available solutions.	Differentiat e explore AS and
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2. JOBS-TO-BE-DONE / PROBLEMS

J&P

Once before the gas is released it should be undergone several methods to remove the toxic present in gas. The gas level is rises above a certain level , it is important to raise an alarm. IOT can be used to continuously monitoring gas leaks on a large scale from a great distances.

9. PROBLEM ROOT CAUSE

RC

Burning natural gas produces nitrogen oxide, carbon monoxide, and methane. Even though we get our end products or useful chemical solutions.

7. BEHAVIOUR

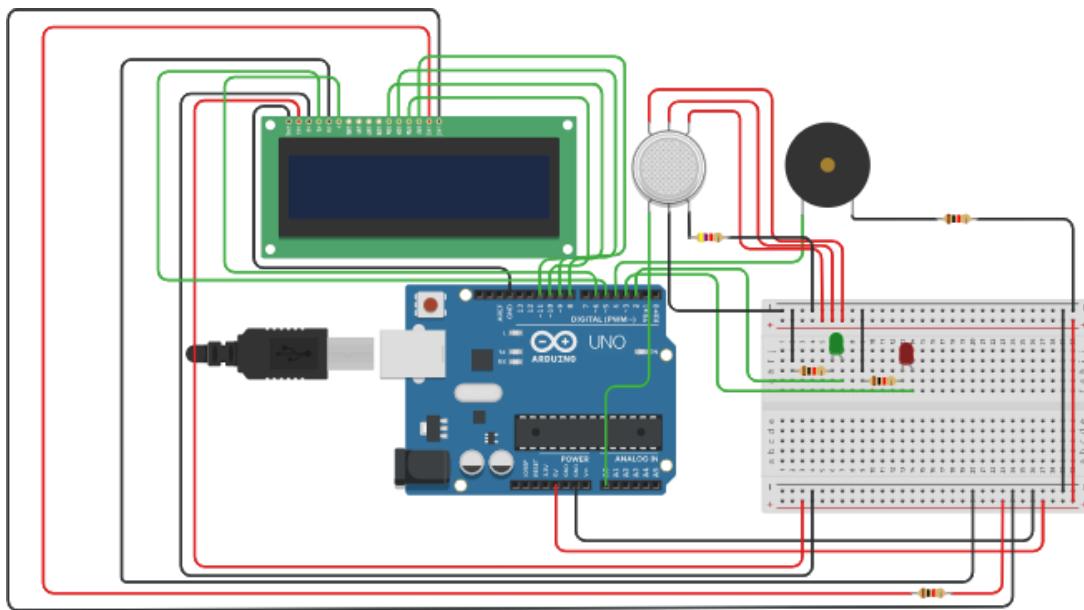
Calculate usage benefits of the system. product will sell to the clients by the project clients. customer volunteer work

	TR	SL	CH
	3. TRIGGERS	10. YOUR SOLUTION	8. CHANNELS OF BEHAVIOUR
This kind of device is very important because there may be many gases that are harmful to organic life. Reviews or feedback from workers.	This application is developed to notify workers by SMS alert and buzzer beep sound in emergency areas. Alarm will be set on so that the workers can know about the leak and run into a safe place.	Online Using the social medias for publish. Offline <input type="checkbox"/> TV advertisements <input type="checkbox"/> Give a Booklets.	Identity Strong TR & EM
4. EMOTIONS: BEFORE / AFTER Before When they face a problem to feel discomfort , confused. After The endpoint will regain their confidence, gives happiness and feels gratitude towards it.			

SOLUTION ARCHITECTURE:

Solution architecture is a complex process

- A wide range of MQ -4 sensors is available in market.
- These can measure methane, butane, LPG, smoke, alcohol, ethanol, carbon monoxide, hydrogen gas, ammonia, etc.
- These sensors are widely used in smoke detection, gas detection and air quality monitoring system.



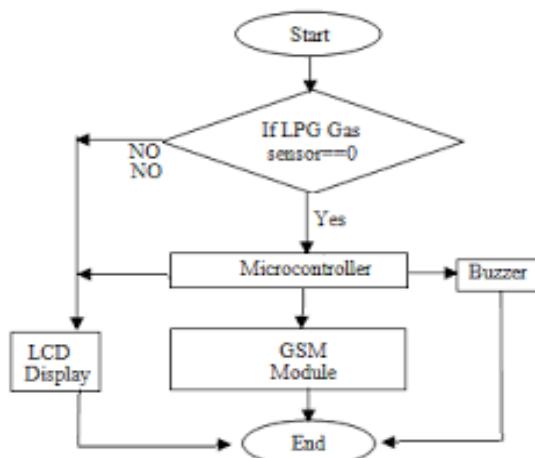
CUSTOMER JOURNEY MAP

	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5
OBJECTIVES	Write a goal or activity	Gas leakage detection systems protect personnel and the environment from potentially hazards exposure to gases	The system comprises of sensors for detecting gas leak interfaced to microcontroller that will give an alert to user whenever there is a gas leakage, display warning information by using liquid.	Gas leak detection system gas leak detection is the process of identifying potentially hazards gas leaks by sensors these sensor usually employ an audible alarm to alert people when dangerous gas has been detected.	An alarm management system represents the series of actions a system performs in an event of gas leakage.
NEEDS	Write a need you want to meet	Fire hazard prevention	Harmful gas detection	Oxygen level measurement	Prompt gas leak alerts
FEELINGS	Write a emotion you expect the customer to have	Happy about this solution	Embrassed on the solution and promoted the good words towards this project.	happy	Encouraging towards this project and giving good feedbacks.
BARRIERS	Write a potential challenge	Higher officials	Commercial companies	The gasses are toxic in nature,	Moreover, gaseous blasts are another

	to your objective			resulting in human unconsciousness and even death if consumed in large quantities.	disaster that everyone-working in a factory or at home –would want to avoid at all costs!
AWARENESS	Write how to create awareness	Online ads and social media	Television ads	newspaper	Direct communication with industrialists and customer
SERVICE	Write what at all services are provided	Provide warranty	Help desk/chat	Free instalization	Free service for atleast 1 year once

Data Flow Diagrams:

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.



User Stories

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user)	Web Application	USN-1	You can view the gas leakage detection results by accessing the web page directly on to the site as a user.	I can access it on my own web pages	High	Sprint-1
	User Availability	USN-2	As a user can directly check the gas maintenance of threshold.	Given reach the greater threshold level.	High	Sprint-1
	Additive availability	USN-3	As a user, can alert and recycle the damage gas flowing tubes.	I can see the threshold value whether it is maintain or not	Low	Sprint-2
	Expectations	USN-4	Monitoring the result based on using valuable sensor	I can expect	Medium	Sprint-1
	Login	USN-5	Login as user using the identity		High	Sprint-1
Customer (Web user)			Web user I can view the obtained result	View the result for web pages directly.	High	Sprint -1
Customer Care Executive			Customer care executive can I see the outputs for gas leakage and alerting system.	Can I accept the terms.	Medium	Sprint-1
Administrator			Industry supervisor we can detect the gas leakage based on the devices	Show the result based on the gas detected.	High	Sprint-1

Use the below template to list all the user stories for the product.

Functional Requirements:

Following are the functional requirements of the proposed solution.

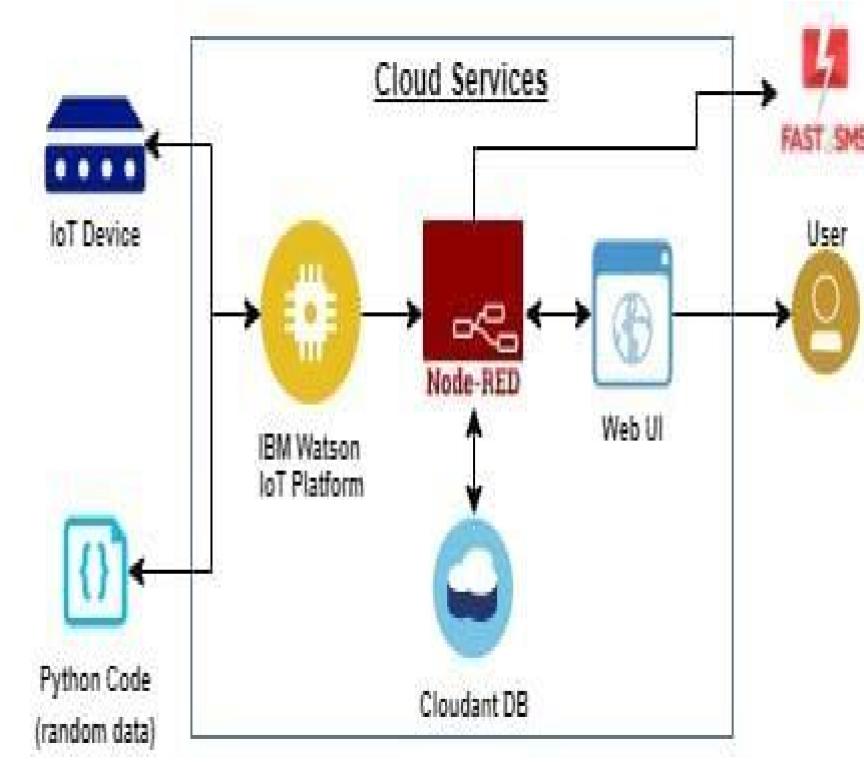
FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Receiving in the user end	Gas level details will be displayed through LCD and alarm will be beeps on the buzzer .
FR-2	Monitoring	Level of gas is monitored using sensor and if there is any leakage, alert can be sent through messages and with a buzzer sound.
FR-3	Sensitivity	Specialised of the gas in all similar systems.
FR-4	User Interface	Emergency calls and messages are with application system.

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	Set of techniques for design and development are implemented.
NFR-2	Security	Strategically improvement of the process ensures less risk.
NFR-3	Reliability	Can be able to provide accurate values. It might have a capacity to recognize the smoke.
NFR-4	Performance	Arduino response time will be fast and detect the smoke quickly.
NFR-5	Availability	Daily used for day and night.
NFR-6	Scalability	Probability of performance is high.

MODEL FOR GAS LEAKAGE MONITORING AND ALERTING SYSTEM FOR INDUSTRIES



ACTIVITY LIST

Phase	Phase Description	Activity Number	Activity
		1.1	Access the resources (courses) & guided project workspace

	Preparation Phase (Prerequisites, Registrations, Environment Set-up, etc.)	1.2	Register on IBM Academic Initiative & Apply Feature code for IBM Cloud Credits
1		1.3	Create GitHub account & collaborate with Project Repository in project workspace
		1.4	Set-up the Laptop / Computers based on the prerequisites for each technology track
2	Ideation Phase (Literature Survey, Empathy map, Ideation)	2.1	Literature survey on the selected project & Information Gathering
		2.2	Prepare Empathy Map Canvas to capture the user Pains & Gains, Prepare list of problem state
		2.3	List the ideas by organizing the brainstorming session and prioritize the top 3 ideas based on
3	Project Design Phase -I (Proposed Solution, Problem-Solution Fit, Solution Architecture)	3.1	Prepare the proposed solution document, which includes the novelty, feasibility of idea, business etc.
		3.2	Prepare problem - solution fit document
		3.3	Prepare the Solution Architecture
4	Project Design Phase - II (Requirement Analysis, Customer Journey, Data Flow Daigrams, Technology Architecture)	4.1	Prepare the customer journey maps to understand the user interactions & experiences with the
		4.2	Prepare the Functional Requirement Document & DataFlow Daigrams
		4.3	Prepare Technology Architecture of the solution

5	Project Planning Phase (Milestones & Tasks, Sprint Schedules)	5.1	Prepare Milestone & Activity List, Sprint Delivery Plan
6	Project Development Phase (Coding & Solutioning, Acceptance Testing, Performance Testing)	6.1	Project Development - Delivery of Sprint-1
		6.2	Project Development - Delivery of Sprint-2
		6.3	Project Development - Delivery of Sprint-3

SPRINT PLAN

Identify the Problem

1

Prepare a Abstract, Problem Statement

2

List a required object needed

3

Create a Code and Run it

4

Make a Prototype

5

Test with the created code and check the designed prototype is

6

Solution for the Problem is Found!!

7

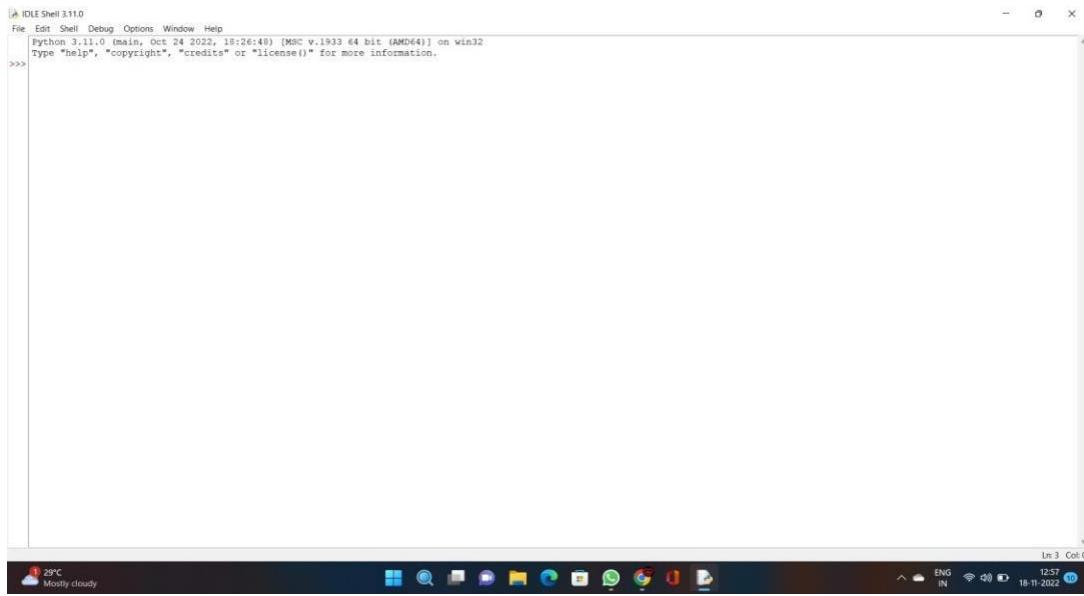
IBM CLOUD SERVICE

The screenshot shows the IBM Cloud dashboard. At the top, there's a navigation bar with links for Catalog, Manage, and account information. Below the navigation is a search bar and a 'Create resource' button. The main content area is divided into several sections:

- For you:** A large purple box titled "Build" with the sub-section "Build a web app with Watson Speech to Text". It includes a brief description, a "Getting started" button (15 min), and a "Popular" badge.
- Get Started with Watson Studio:** Includes a "Getting started" button (2 hr) and a "Popular" badge.
- Build a Virtual Private Cloud (VPC):** Includes a "Getting started" button (7 min) and a "Recommended" badge.
- Learn about IAM Roles:** Includes a "Getting started" button (5 min) and a "Recommended" badge.
- vm:** A section titled "Build a virtual machine" with a "Getting started" button (7 min).
- News:** A section with three items:
 - IBM Cloud Satellite New Pricing
 - IBM Cloud Data Shield Deprecation
 - IBM Watson Orchestrate Is Integrating with ThisWay Global
- Recent support cases:** A link to view all recent support cases.
- Planned maintenance:** A link to view all planned maintenance.
- IBM Cloud status:** A world map showing regional status.

The bottom of the screen shows a taskbar with various application icons and a system tray with weather information (29°C, Mostly cloudy), language (ENG IN), and date/time (12:57, 18-11-2022).

SOFTWARE



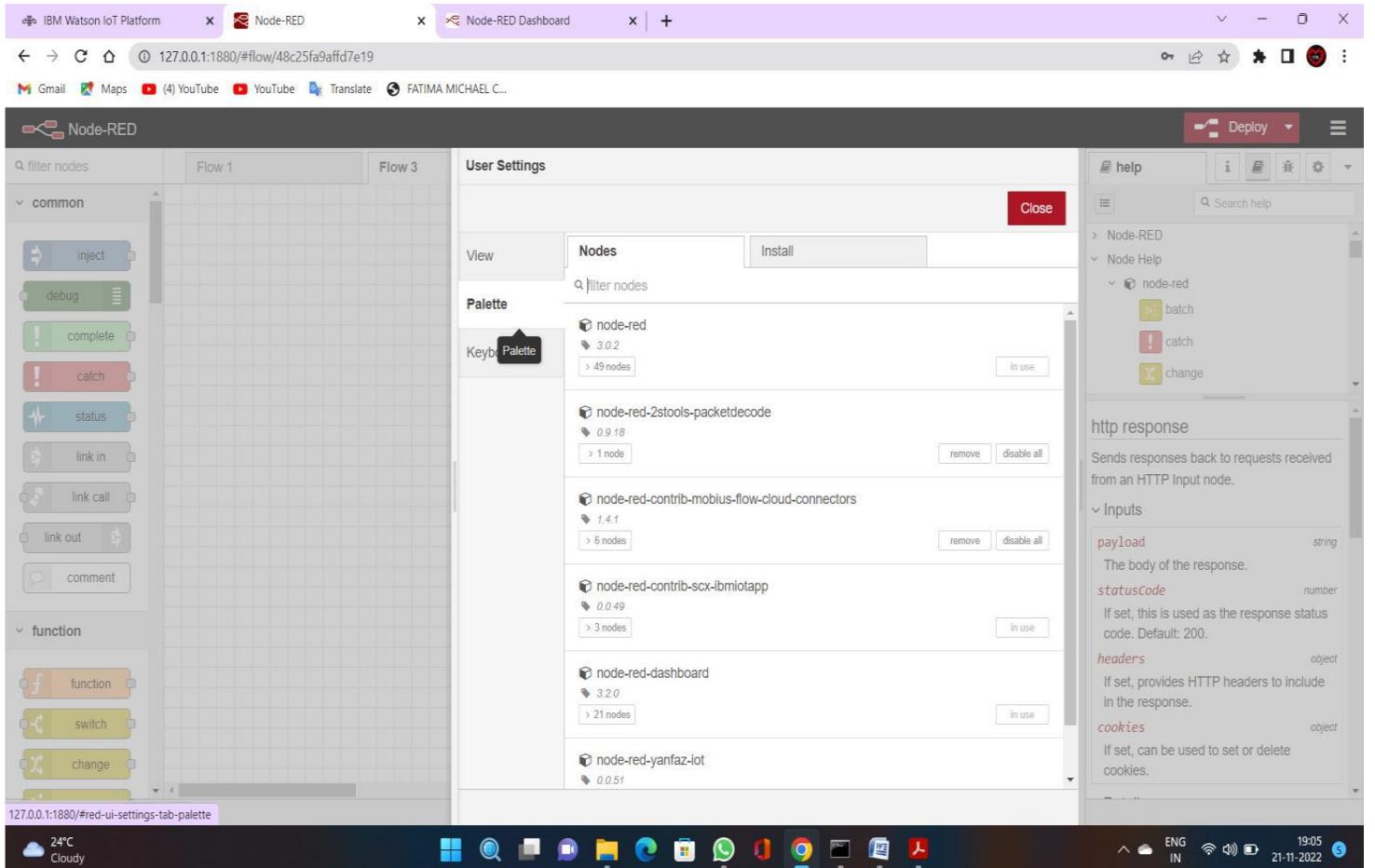
Creating The IBM Watson IoT Platform And A Device

The screenshot shows a web browser window for the IBM Watson IoT Platform. The URL in the address bar is `nqgnxe.internetofthings.ibmcloud.com/dashboard/devices/browse`. The page title is "IBM Watson IoT Platform". On the left, there's a vertical sidebar with icons for Home, Devices, Actions, Device Types, and Interfaces. The main content area is titled "Browse Devices" and has tabs for "All Devices" (which is selected) and "Diagnose". Below this, a table displays device information. The table has columns: Device ID, Status, Device Type, Class ID, Date Added, and Descriptive Location. One row is visible, showing a Device ID of 1234567890, a status of "Disconnected", a Device Type of "IOT", a Class ID of "Device", and a Date Added of "16 Nov 2022 3:49 PM". At the bottom of the table, it says "Items per page 50 | 1–1 of 1 item". The top right of the page shows the user's email (veerapandicse007@gmail.com) and ID (nqgnxe). There's also a "Add Device" button. The bottom of the screen shows a Windows taskbar with various pinned icons and system status indicators.

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
1234567890	Disconnected	IOT	Device	16 Nov 2022 3:49 PM	

GAS LEAKAGE MONITORING AND ALERTING SYSTEM

CREATE Node-RED SERVICES



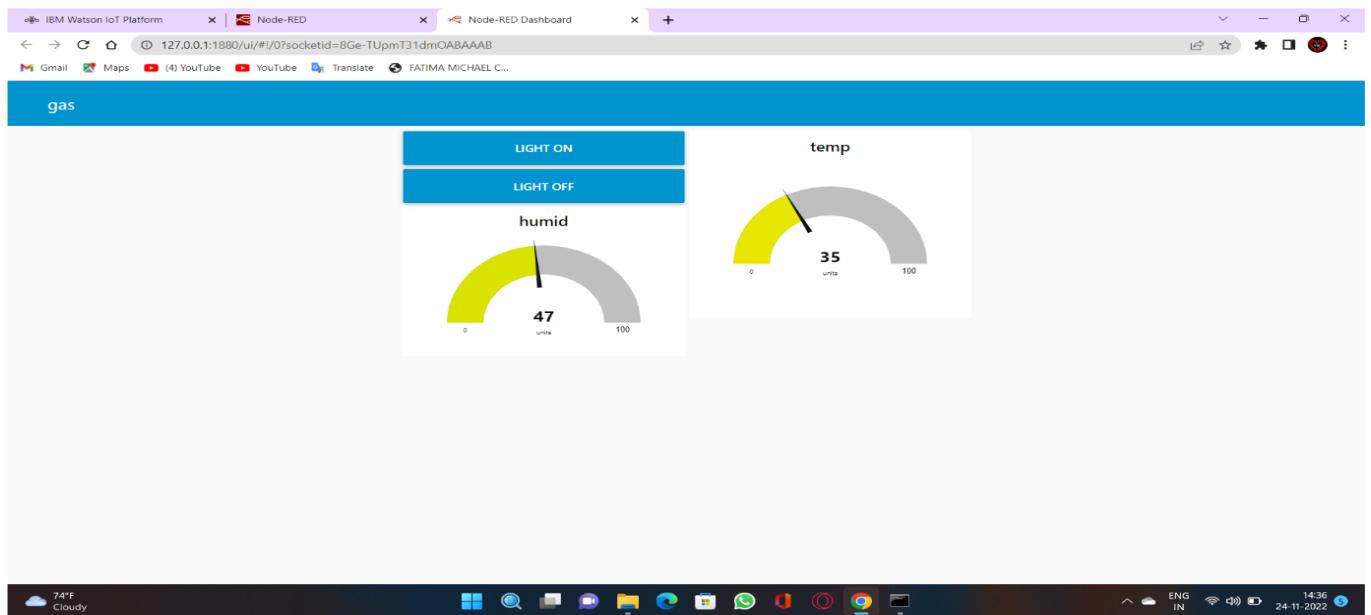
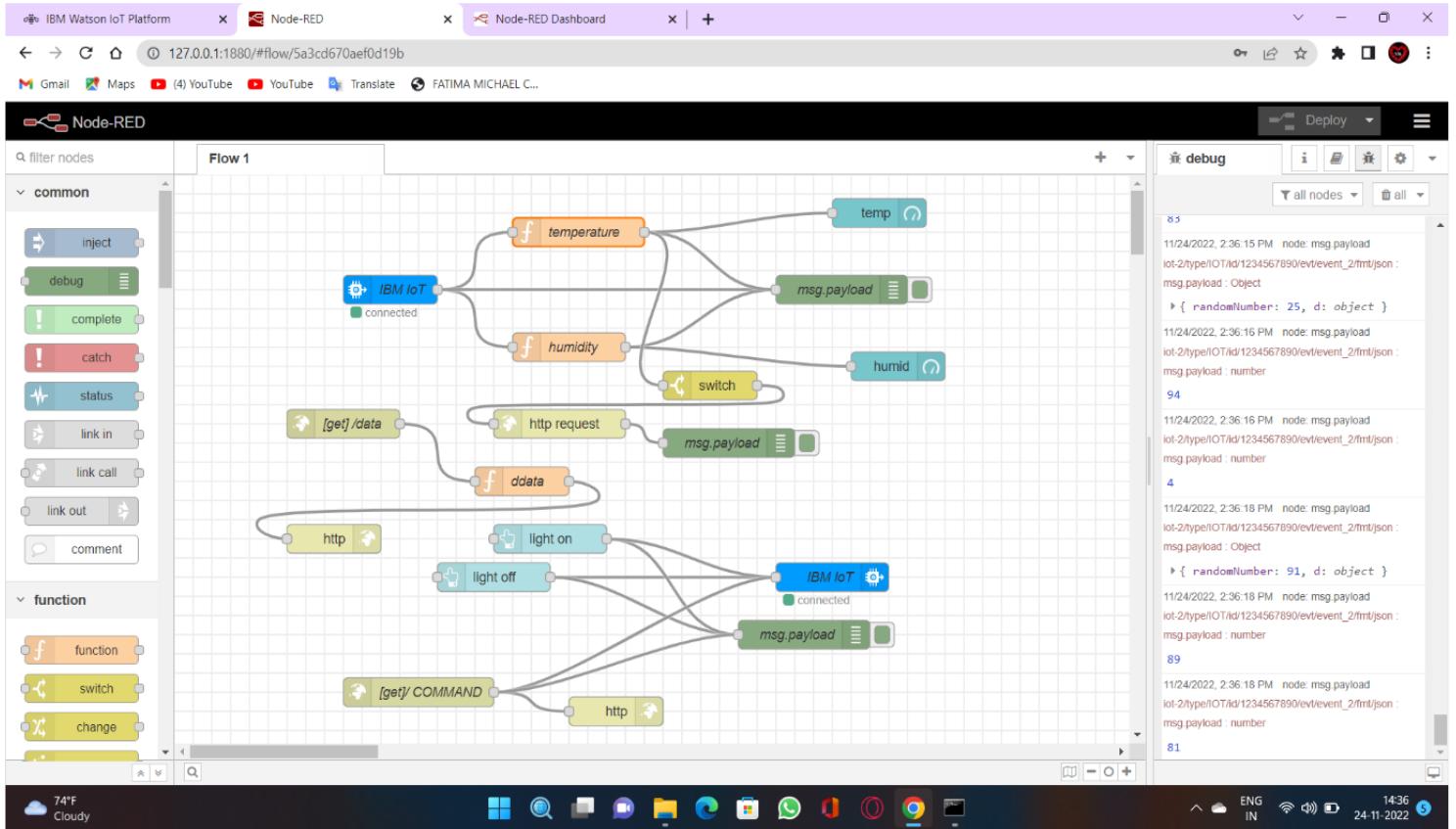
Creating The IBM Watson IoT Platform And A Device

The screenshot shows the IBM Watson IoT Platform dashboard with the URL nqgnxe.internetofthings.ibmcloud.com/dashboard/devices/browse. The interface includes a sidebar with various icons, a top navigation bar with tabs like 'Browse', 'Action', 'Device Types', and 'Interfaces', and a main content area titled 'Browse Devices'. A table lists one device entry:

	Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
>	1234567890	Disconnected	IOT	Device	16 Nov 2022 3:49 PM	

At the bottom, there are system status indicators (32°C Haze), a taskbar with various application icons, and a system tray showing battery level, signal strength, and the date/time (18-11-2022).

Develop The Web Application Using Node-RED



Develop The Python Code

```
File Edit View Navigate Code Refactor Run Tools VCS Window Help pythonProject1 - main.py
pythonProject1 main.py
Project main.py
1 import random
2 import sys
3 import time
4
5 import ibmiotf.device
6
7 # Provide your IBM Watson Device Credentials
8 organization = "nqgnxe"
9 deviceType = "IOT"
10 deviceId = "1234567890"
11 authMethod = "token"
12 authToken = "1234567890"
13
14
15 # Initialize GPIO
16 def myCommandCallback(cmd):
17     print("Command received: %s" % cmd.data['command'])
18     status = cmd.data['command']
19     if status == "lighton":
20         print("led is on")
21     elif status == "lightoff":
22         print("led is off")
23     else:
24         print("please send proper command")
25
26
27 try:
28     deviceOptions = {"org": organization, "type": deviceType, "id": deviceId, "auth-method": authMethod, "auth-token": authToken}
29     deviceCli = ibmiotf.device.Client(deviceOptions)
30     # .....
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```

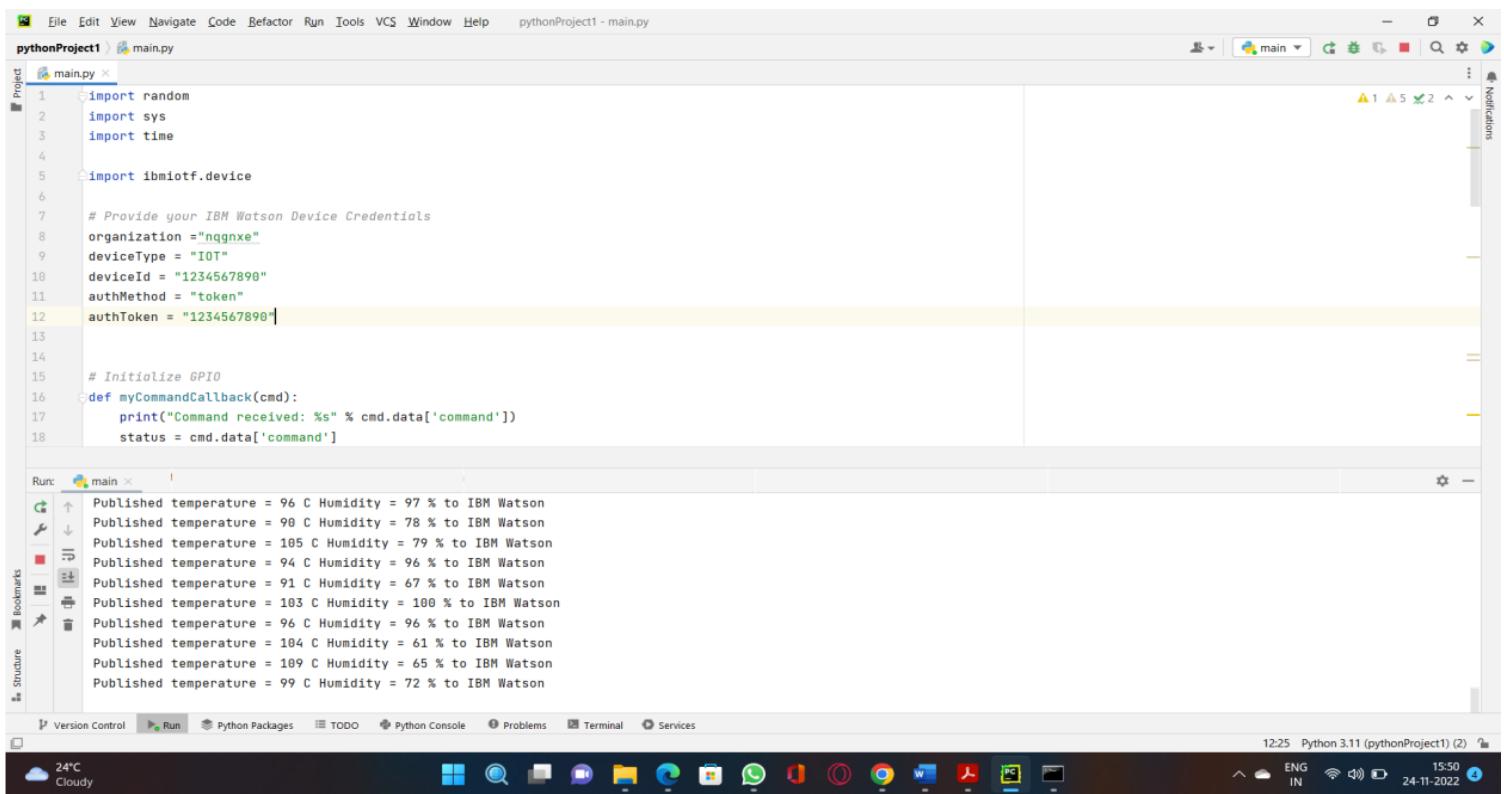
```

try:
deviceOptions = {"org": organization, "type": deviceType, "id": deviceId, "auth-method": authMethod, "auth-token": authToken}
deviceCli = ibmiotf.device.Client(deviceOptions)
# .....
except Exception as e:
print("Caught exception connecting device: %s" % str(e))
sys.exit()
# Connect and send a datapoint "hello" with value "world" into the cloud as an event of
type "greeting" 10 times
deviceCli.connect()

while True:
# Get Sensor Data from DHT11
temperature = random.randint(90, 110)
Humidity = random.randint(60, 100)
data = {'temperature': temperature, 'Humidity': Humidity}
# print data
def myOnPublishCallback():
print("Published temperature = %s C" % temperature, "Humidity = %s %%" % Humidity, "to IBM
Watson")
success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0,
on_publish=myOnPublishCallback)
if not success: print("Not connected to IoTF")
time.sleep(10)
deviceCli.commandCallback = myCommandCallback
deviceCli.disconnect()

```

OUTPUT:



The screenshot shows the PyCharm IDE interface with the following details:

- Project:** pythonProject1
- Code Editor:** The main.py file is open, displaying Python code for connecting to an IBM Watson Device and publishing sensor data. The code includes imports for random, sys, time, and ibmiotf.device, and defines variables for organization, deviceType, deviceId, authMethod, and authToken.
- Run Tab:** Shows the output of the script execution. The output consists of multiple lines of text, each starting with "Published temperature = " followed by a temperature value (e.g., 96, 90, 105, 94, 91, 103, 96, 104, 109, 99) and "Humidity = " followed by a humidity percentage (e.g., 97%, 78%, 79%, 96%, 67%, 100%, 96%, 61%, 65%, 72%). Each line ends with " to IBM Watson".
- Bottom Status Bar:** Displays system information including the date (24-11-2022), time (12:25), and Python version (Python 3.11 (pythonProject1) (2)).

IBM Watson IoT Platform | Node-RED | Node-RED Dashboard

IBM Watson IoT Platform

Browse Action Device Types Interfaces Add Device +

Search by Device ID Device Simulator

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
1234567890	Connected	IOT	Device	16 Nov 2022 3:49 PM	

Identity Device Information Recent Events State Logs

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
IoTSensor	{"temperature":106,"Humidity":86}	json	a few seconds ago
IoTSensor	{"temperature":97,"Humidity":84}	json	a few seconds ago
IoTSensor	{"temperature":107,"Humidity":77}	json	a few seconds ago
IoTSensor	{"temperature":109,"Humidity":83}	json	a few seconds ago

1 Simulation running

Show all

IBM Watson IoT Platform | Node-RED | Node-RED Dashboard

Node-RED

Flow 1

```

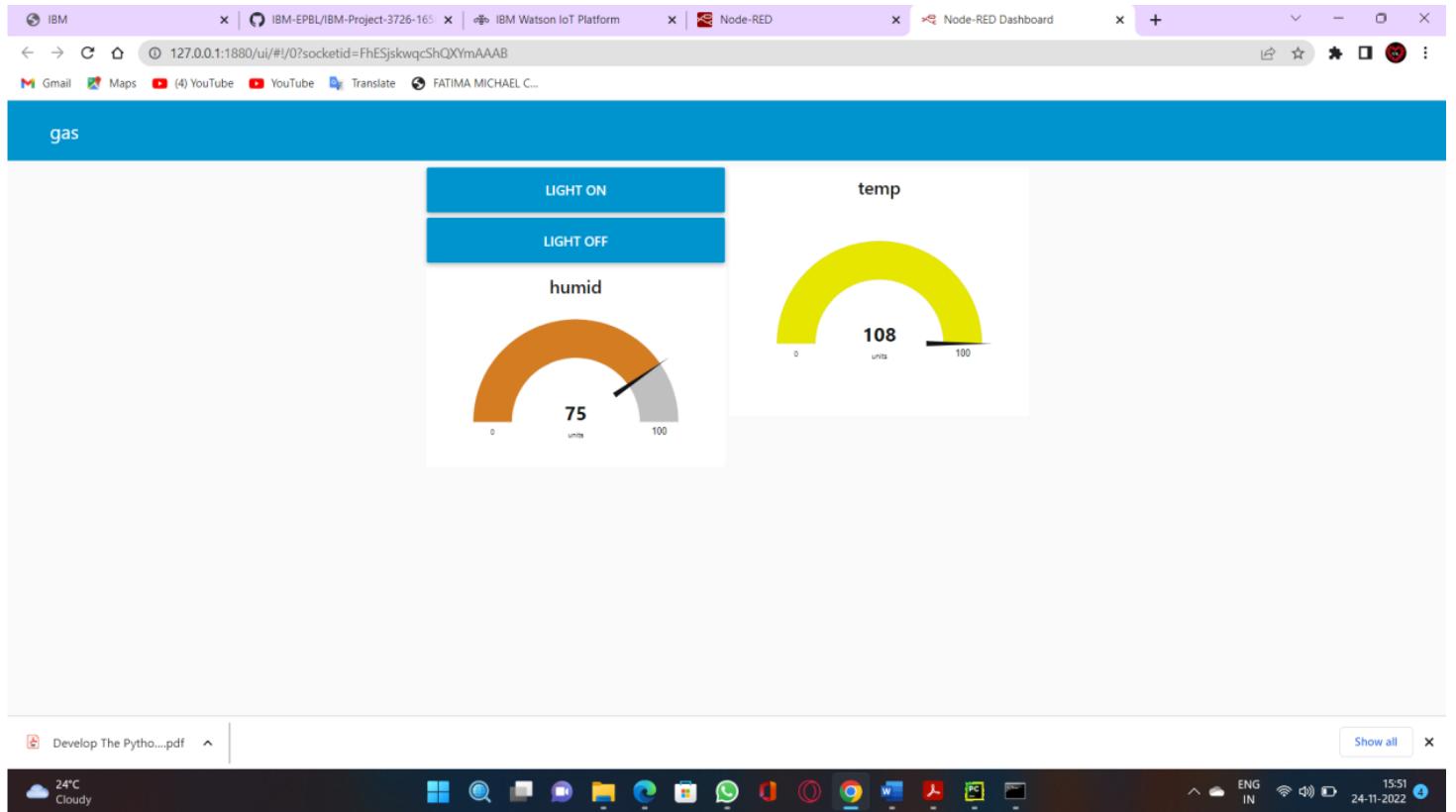
graph TD
    inject[inject] --> IoT[IBM IoT]
    IoT -- "f temperature" --> temp[temp]
    IoT -- "f humidity" --> humid[humid]
    temp --> msgPayload[msg.payload]
    humid --> msgPayload
    msgPayload --> ddata[ddata]
    ddata --> http[http]
    http --> lightOn[light on]
    lightOn --> IoT
    ddata --> lightOff[light off]
    lightOff --> IoT
    
```

Deploy

debug

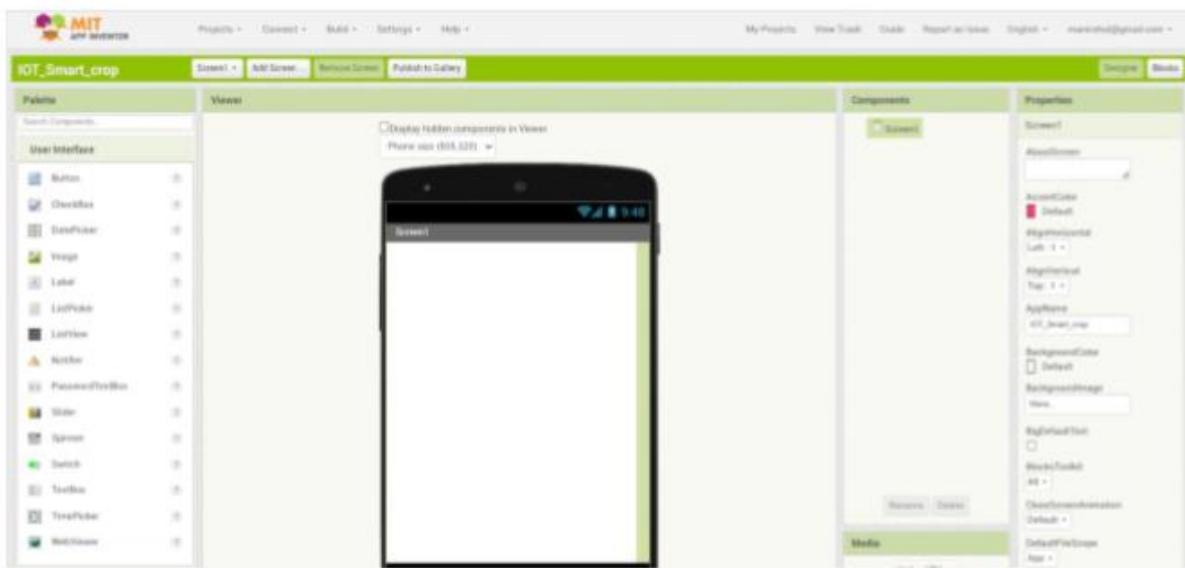
msg.payload : number
85
11/24/2022, 3:51:28 PM node: msg.payload
iot-2/typeIOT/id/1234567890/evt/IoTSensor/fmt/json
msg.payload : number
91
11/24/2022, 3:51:28 PM node: msg.payload
iot-2/typeIOT/id/1234567890/evt/IoTSensor/fmt/json
msg.payload : number
75
11/24/2022, 3:51:28 PM node: msg.payload
iot-2/typeIOT/id/1234567890/evt/IoTSensor/fmt/json
msg.payload : number
104
11/24/2022, 3:51:28 PM node: msg.payload
iot-2/typeIOT/id/1234567890/evt/IoTSensor/fmt/json
msg.payload : Object
{" temperature: 91, Humidity: 64 }
11/24/2022, 3:51:28 PM node: msg.payload
iot-2/typeIOT/id/1234567890/evt/IoTSensor/fmt/json
msg.payload : Object
{" temperature: 107, Humidity: 78 }

Show all

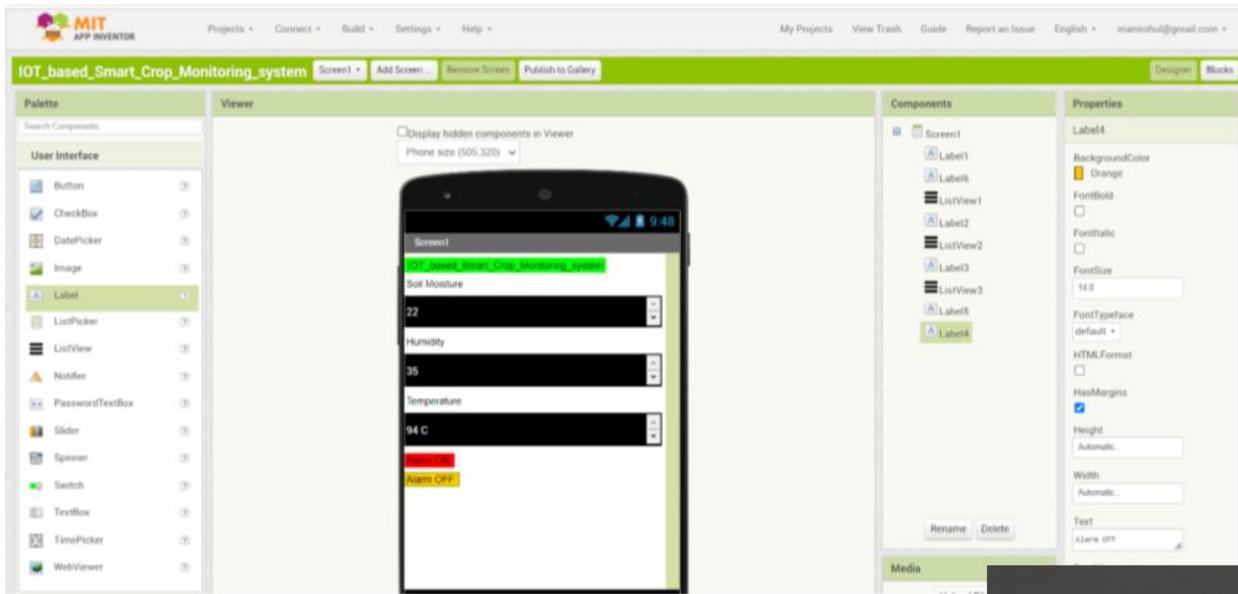


DEVELOP MIT APP

Step 1: MIT app inventor to design the app



Step 2: customize the app interface to display the values



Feature:

- IoT device
- IBM Watson Platform
- Node red • Cloudant DB
- Web UI • MIT App Inventor
- Python code

ADVANTAGES

- Get real-time alerts about the gaseous presence in the atmosphere
- Prevent fire hazards and explosions
- Supervise gas concentration levels
- Ensure worker's health
- Real-time updates about leakages
- Cost-effective installation
- Data analytics for improved decisions
- Measure oxygen level accuracy
- Get immediate gas leak alerts

DISADVANTAGES

- Individual one gas can be measured with each instrument.
- When heavy dust, steam or fog blocks the laser beam, the system will not be able to take measurements.
- This is also the case when a person or vehicle blocks the path.

CONCLUSION

The advantage of this simple gas leak detector is its simplicity and its ability to warn about the leakage of the LPG gas. This system uses GSM technique to send alert message to respective person if no one is there in the house and then gas leaks occurs, GSM module is there to send immediate messages to the respective person regarding the gas leak. The main advantage of this system is that it off the regulator knob of the cylinder automatically when gas leakage detected.

GITHUB

<https://github.com/IBM-EPBL/IBM-Project-3726-1658593732>