

# **SMART BRIDGE: PROJECT**

## **Smart security and safety solutions based on IoT for large industrial plants**

### **Team Members:**

1. K.Harshith  
[kanuthala.harshith2019@vitstudent.ac.in](mailto:kanuthala.harshith2019@vitstudent.ac.in)
2. Y. Sushwanth Reddy  
[yanamalasushwanth.2019@vitstudent.ac.in](mailto:yanamalasushwanth.2019@vitstudent.ac.in)
3. N. Varun Krishna  
[varun.krishna2019@vitstudent.ac.in](mailto:varun.krishna2019@vitstudent.ac.in)
4. K. Varun Reddy  
[kunnamvarun.reddy2019@vitstudent.ac.in](mailto:kunnamvarun.reddy2019@vitstudent.ac.in)

### **Introduction:**

#### **Overview:**

To create smart security and safety system for large industrial plants.

#### **Objective:**

To develop smart security and safety system which stores the date and time of employee while entry and exit using IBM cloud. Alerts the employee who exceeds the time duration in radiation room by using buzzer and by displaying message to leave the room in OLED screen.

#### **Survey:**

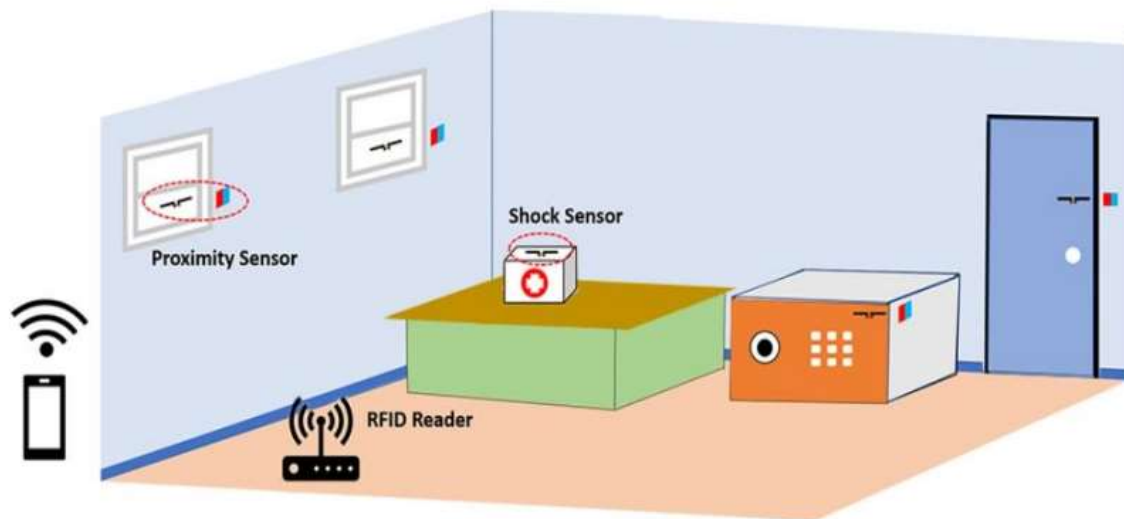
#### **Existing model:**

General model which can store date and time for entry and exit.

## Solution:

We can calculate the total time spent in company using IBM cloud, we can send alert to employee in radiation room who exceeds the time limit. This can save the employee from radiation effect.

## Block Diagram:



## Requirements:

Python IDLE

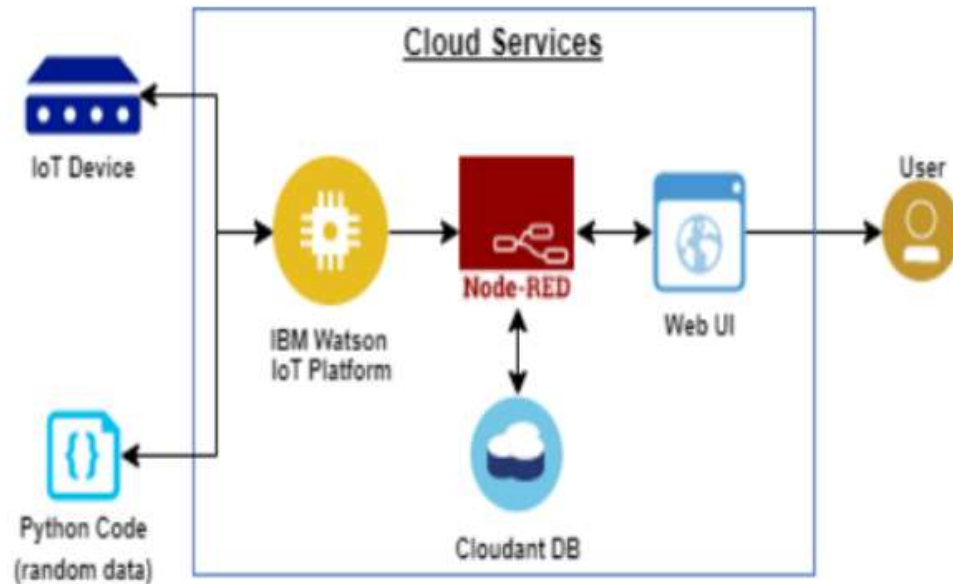
IBM account:

IBM Cloud

IBM Watson IoT platform

Node-red

## Flow Chart:



## Procedure:

Develop the code:

```
test.py - C:\Users\varun\OneDrive\Desktop\iotproject\test.py (1.8K)
File Edit Format Run Options Windows Help

{
  "deviceId": "414500",
  "typeId": "Kitchen400",
  "deviceId": "0A070001"
},
{
  "auth": {
    "token": "vishnu4007"
  }
}
}

def myCommandCallback(cmd):
    print("Message received from IBM IoT Platform: %s" % cmd.data["command"])
    s=cmd.data["command"]
    print("A Person with ID " + str(s) + " should leave the room immediately to avoid radiation")
    print()
    time.sleep(3)

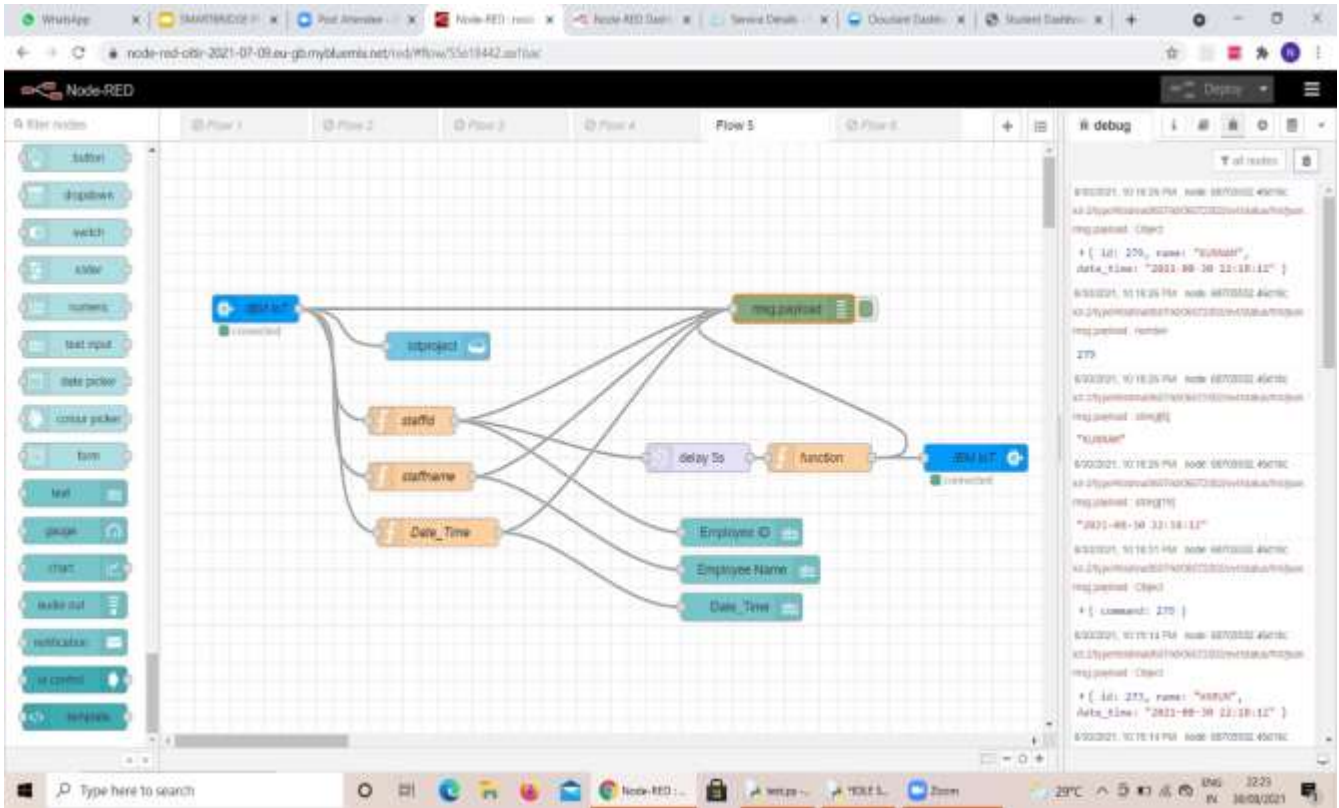
client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None)
client.connect()

name = [ 273: "GAGAN", 266: "ARASHITH", 271: "SUDHAKSH", 278: "HUNGRY"]
l = [273,266,271,278]
now=datetime.datetime.now()
date_time = now.strftime("%Y-%m-%d %H:%M:%S")

while True:
    a = int(input("Enter 3 to refresh/ to receive commands"))
    if a==3:
        client.commandCallback = myCommandCallback
    else:
        i = int(input("\nEnter the Employee ID: "))
        n = input("Enter Employee Name: ")
        if i in l:
            if name[i] == n:
                print("Person is authorized you can enter")
                myData={"id":i, "name":n, "date time":date_time}
                client.publish(eventId="status", msgFormat="json", data=myData, qos=0, onPublish=None)
                print("Published data successfully: %s"%myData)
            else:
                print("Invalid name for the Employee ID")
        else:
            print("Unauthorized Access")

        client.commandCallback = myCommandCallback
    print()
client.disconnect()
```

Node-red:



**Result:**

```

C:\Users\VARUN_KRISHNA>python test.py
Type "help", "copyright", "credits" or "license()" for more information.
>>>
Restart: C:/Users/Varun_Krishna/Desktop/IoTproject/test.py
Enter 5 to refresh/ to receive commands2021-08-30 22:19:17.943  Wslcp.vss.DeviceClient.DeviceClient INFO Connected successfully: 9/414594121shana467/9497202
1

Enter the Employee ID: 279
Enter Employee Name: MUNNAM
Person is authorized you can enter
Published data Successfully: 5a ('id': 279, 'name': 'MUNNAM', 'date_time': '2021-08-30 22:18:12')

Enter 5 to refresh/ to receive commands
Message received from I2M IoT Platform: 279
Enter the Employee ID:
273

Person with ID 279 should leave the room immediately to avoid radiationEnter Employee Name:
VARUN

Person is authorized you can enter
Published data Successfully: 5a ('id': 273, 'name': 'VARUN', 'date_time': '2021-08-30 22:18:12')

Enter 5 to refresh/ to receive commands
Enter 5 to refresh/ to receive commands2
Message received from I2M IoT Platform: 273
Enter the Employee ID:
271

Person with ID 273 should leave the room immediately to avoid radiationEnter Employee Name:
SUDHAKSHI

Person is authorized you can enter
Published data Successfully: 5a ('id': 271, 'name': 'SUDHAKSHI', 'date_time': '2021-08-30 22:19:12')

Enter 5 to refresh/ to receive commands246
Message received from I2M IoT Platform: 271
Enter the Employee ID:
246

Person with ID 271 should leave the room immediately to avoid radiationEnter Employee Name:
SARASWATHI

Person is authorized you can enter
Published data Successfully: 5a ('id': 246, 'name': 'SARASWATHI', 'date_time': '2021-08-30 22:19:12')

Enter 5 to refresh/ to receive commands

```

```

msg.payload : string[8]
" SUSWANTH"

8/30/2021, 10:19:40 PM node: 68705552.46d18c
iot-2/type/Krishna0607/Id/06072002/evt/status/fmt/json :
msg.payload : string[19]
"2021-08-30 22:18:12"

8/30/2021, 10:19:45 PM node: 68705552.46d18c
iot-2/type/Krishna0607/Id/06072002/evt/status/fmt/json :
msg.payload : Object
▶ { command: 271 }

8/30/2021, 10:20:19 PM node: 68705552.46d18c
iot-2/type/Krishna0607/Id/06072002/evt/status/fmt/json :
msg.payload : Object
▶ { id: 266, name: "HARSHITH",
  date_time: "2021-08-30 22:18:12" }

8/30/2021, 10:20:19 PM node: 68705552.46d18c
iot-2/type/Krishna0607/Id/06072002/evt/status/fmt/json :
msg.payload : number
266

8/30/2021, 10:20:19 PM node: 68705552.46d18c
iot-2/type/Krishna0607/Id/06072002/evt/status/fmt/json :
msg.payload : string[8]
"HARSHITH"

8/30/2021, 10:20:19 PM node: 68705552.46d18c
iot-2/type/Krishna0607/Id/06072002/evt/status/fmt/json :
msg.payload : string[19]
"2021-08-30 22:18:12"

```

WhatsApp x SMARTBRIDGE P x Post Attendee - T x Node-RED: node x Node-RED Dash: x Service Details x Cloudant Dash: x Student Dashbo: x + - X

node-red-citr-2021-07-09.eu-gb.mybluemix.net/aj/#/0?socketid=bclY0XOUu7wa0naAAU

project

#### CONTROL

Employee ID	266
Employee Name	HARSHITH
Date_Time	2021-08-30 22:18:12

The screenshot shows the Cloudant Dashboard interface for a project named 'iotproject'. The left sidebar contains navigation options: All Documents, Query, Permissions, Changes, and Design Documents. The main area displays a table of documents. The table has the following columns: \_id, name, commandType, date\_time, and deviceId. The data is as follows:

_id	name	commandType	date_time	deviceId
019812066678462c0a49...	HARSHITH		2021-08-30 21:53:49	
5f8ba4f04db4ca9688ab...	SUDWANTH			
59f8aa0e75f7b2b0080c...	VARUN			
59f8aa0e75f7b2b0080c...	KUNNAM			
5ac1e09954f03937d6b6...	VARUN		2021-08-30 21:49:17	
5f993a81c2c41255b79b...	KUNNAM			
5f993a81c2c41255b79b...	VARUN		2021-08-30 21:53:49	
64462050d1098d73c9f1...		cmd		06072002
648fe4926800a490a62...	VARUN			
7103de73eb2b60b103f6...		cmd		06072002
07e1b1d71c026a054ba...		cmd		06072002
97904947ac4ebf2a738e...	HARSHITH			
97904947ec0abf2a738e...	VARUN			

At the bottom of the table, it says 'Showing 5 of 11 columns. Show all columns.' and 'Showing document 1 - 20. Documents per page: 20'.

## Advantages:

Reduction in maintenance costs

Safety operator

Secured data

Flexible

Easy accessibility

Interference

## Disadvantages:

Cost

High storage required

Disturbances

## **Conclusion:**

This project is mainly focused on date and time of entry/exit of the employee. This can measure the total time spent in company by calculating time from exit and entry time. To ensure the safety of the employee, we use countdown from the time of entry to the radiation room and when the time limit has reached, alert is given to employee by making the buzzer on and displaying message to leave the radiation room in the OLED screen. This helps the safety of the employee. All the data is stored in the cloud, which can be accessed easily.

## **Bibliography:**

Smart bridge lecture videos

IBM platform videos

<https://thesmartbridge.com/documents/projects/SmartHomeAutomationusingIBMCloud.pdf>

## **Source code:**

[https://github.com/gnaneshwarbandari/IOT/blob/main/ibm\\_code.py](https://github.com/gnaneshwarbandari/IOT/blob/main/ibm_code.py)

[https://github.com/divyanemuri/SmartInternz-IoT-Externship-2021/blob/master/Python\\_pubsubIBM.p](https://github.com/divyanemuri/SmartInternz-IoT-Externship-2021/blob/master/Python_pubsubIBM.p)