

SMART KITCHEN

1.INTRODUCTION

1.1 Over view :

The present day society is moving towards the adaptation of the digital environment. The applications of Information communication technology have brought a sea change in human life. The earlier 'internet of computers' transformed into 'internet of people' by introduction of social websites followed by mobile computing .

The different generations of internet connection have made it possible for faster accessibility accompanied by better quality. The further advancement of this technology is the 'Internet of Things' through which, the interoperability and intelligence can be achieved. This is possible through communication between certain devices that are connected through the internet, wireless sensor networks (WSN) and smart phones. These devices in the system are able to perceive, process and deliver the product as per the programming.

1.2 Purpose :

The present paper aims to highlight the various aspects of IoT and its role in smart kitchen. Smart Kitchen is a technologically advanced system that incorporates interactive services. Kitchen is the unique place, called the main hub or the heart of the home. It is the place where one of the basic needs i.e. food is prepared. It is equipped with all basic amenities.

The smart kitchen is installed with all computing system to exhibit smart behavior based on sensors, actuators and interactive devices that are built in or embedded with in the household articles . The integral components of the computing system will sense

and model contextual information and apply it for providing smart services for a chosen application.

2.LITERATURE SURVEY :

2.1 Existing problem :

We use our kitchens in everyday of our lives and we also know that kitchen is very well known as the heart of the home, but a hectic kitchen makes you more vulnerable to risks. The problems that occur in kitchen often relate to manual handling, the way stock is stored and the cleanliness of the environment. There are more number of risks that occur due to poor maintenance of the cylinders. Flawed use of LPG can end up in blasts, fire hazards, property damage and most vitally deathly injuries or death. The quantity of jars and the weight of the cylinders remain unnoticed as it is difficult to find a cylinder instantly.

2.2 Existing solution :

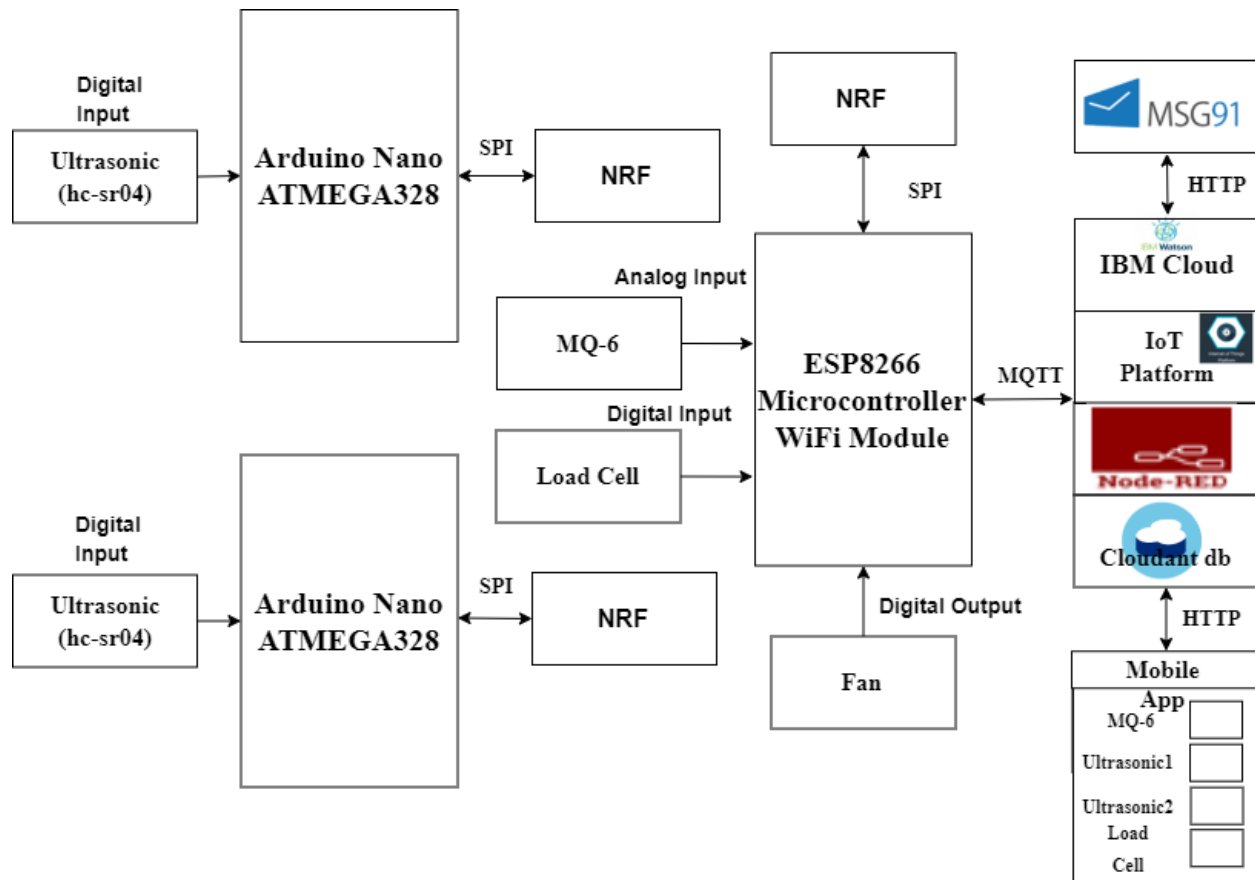
The system principally monitors kitchen environment parameters such as light intensity, room temperature, fire detection, motion detection and LPG gas level, has been developed. The system can monitor the status of kitchen and send an email and/or an alert SMS via GSM network automatically, if the conditions get abnormal, to a concerned authorities mobile phone.

The concerned authority can control the system through his mobile phone by sending AT Commands to GSM MODEM or by taking the necessary steps in user email, which is

password protected. This system finds a wide application in areas where physical presence is not possible all the time. The system offers a complete, low cost, powerful and user friendly way of real-time monitoring and remote control of kitchen. A prototype model is developed and tested with high accuracy result.

3 THEORITICAL ANALYSIS:

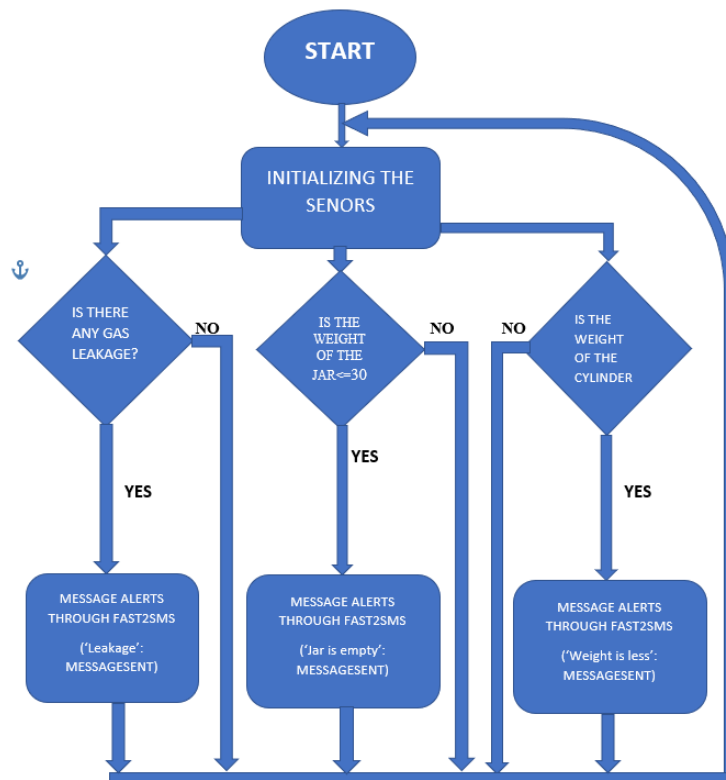
3.1 Block diagram :



3.2 Hardware / Software designing :



FLOWCHART :



RESULT :

The Project " IOT based Smart Kitchen System" was designed such that the status of the quantity of jars, leakage and weight of the cylinders can be known to the users through the message alerts to their phone.

ADVANTAGES :

- © **Safety** :If there is one reason to make your kitchen smart it's for safety reasons, those appliances especially the cylinder you use every day can

turn deadly simply by forgetting to turn off the element and having something combustible close by. This can become a real issue not only for them, but for others living in the building. By using this smart kitchen we can avoid these problems by sending the alert messages to the phones.

- © **Convenience:** The whole idea behind smart home technology is making your home more convenience and saving you time especially in the kitchen. Smart kitchen devices like the stove lets you turn on the oven with your smartphone so when you get home it's already preheated. You can also monitor the cooking time and raise or lower the temperature from your phone. It also help you to know about the quantity of the jars before it gets empty.
- © **Performance :** With smart kitchen appliances performance will really make cooking faster or any other meals simpler. Advanced cooking technology and devices improve the quality and consistency of the meals cooked. When the devices are connected smartly there's no guessing with cooking times and precise temperatures, giving you the best results. The sensors attached to the cylinders also notify you before its weight goes down completely.
- © **Speed :** Modern kitchen technology is in a word, fast. This also plays in to the whole idea of being convenient and efficient. However, speed also means spending less time doing the prep work preparing a meal, for instance. It means being able to use as many kitchen gadgets and tools without worrying too much about the cleanup. It also means being able to prepare a healthy and delicious breakfast smoothie just by dropping the ingredients in, letting the machine dispense the smoothie, and then letting the machine clean itself.

DISADVANTAGES :

- © **Smart appliances cost more:** In addition to higher purchase prices, they

often require more repairs than mechanical versions of the same machines. According to Angie's List , those repairs can be 50 to 100 percent more expensive.

- ◎ **They may pose data and privacy risks:** Smart home appliances may not utilize reliable internet security protocols, giving hackers a pathway to access other connected devices in your home. Also, the more data that these devices are collecting about you, your habits, and your home, the more that data could be vulnerable.
- ◎ **Firmware issues:** Manufacturers may not provide timely firmware updates, which means an appliance may no longer integrate with other devices, like a smart home hub and voice-activated controllers. It's also easier for hackers to access devices that aren't kept up-to-date and secure.
- ◎ **No connection = dumb appliances:**

APPLICATIONS :

- ◎ Monitoring the all sensors and its value for safty detection of gas leakage, temperature and Humidity of room,and daily usage of system to the user.
- ◎ Exhaust fan switched on in case of abnormal readings.
- ◎ Stores the data related to the system like daily data monitoring.
- ◎ Intelligent System for Domestic Gas Appliances using IOT.

CONCLUSION :

- ◎ Our Smart Kitchen using IOT system with multiregional sensors has been designed, constructed and tested. The results obtained from

the tests carried out shows that the system is capable of sending SMS alerts to the user whenever it is necessary.

- © In smart kitchen gas sensors and weight sensors are used to provide all the automation features that includes safety features over gas leakage detection system. weight sensors are used to detect the weight of the gas cylinder.
- © Developing the smart kitchen can prevent the fire accident and hazards. We can also use this in various applications like home automation, Hospital management, Military management, industrial applications.

FUTURE SCOPE :

One of the modifications is to provide the system with a dual power supply i.e. include a battery power supply source in addition to the utility power supply. Design the sensors that can be used for more kitchen parameters. Apply various techniques to make the system more secure. This is useful for many real world applications and services. The idea of IOT is especially valuable for person with disabilities, as IOT technologies can support human activities at larger scale, as the devices can mutually cooperate to act as a total system. So far much work has been done on developing the Internet Of Things.

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APPENDIX:

Our Smart Kitchen using IoT system with multiregional sensors has been designed, constructed and tested. The result obtained from the tests carried out shows that the system is capable of sending SMS alerts whenever there is gas concentration at the inputs of the gas sensors. Hence this system can be used in homes and public buildings such as hotels and restaurants. Smart kitchen provides you all the automation features that include safety features over gas leakage detection system. For this we are using gas sensors, temperature

sensors, weight sensors. Gas sensors are used to detect the leakage of a gas in the system, weight sensors are used to detect the weight of the gas cylinder. Temperature sensors are used to detect the current room temperature. Server stores information and related data are stored in it; it also stores the information about the hardware, sensors, and also maintains the logs and status of system, also stores the room temperature and information about the users. Threshold values are set into the room, when it crosses that values it will send a notification to the user, about the leakage of a gas cylinder and leakage of a gas. Server can communicate with the user through android device. Through email and SMS server can sends a notification to the user which will display on the android devices. It can prevent the accident and hazards. The only way to access the information is if the user is far from the home. It is a cost effective and time-consuming solution. We can use this in various applications like home automation, Hospital management, Military management, industrial applications. One of the modifications is to provide the system with a dual power supply i.e. include a battery power supply source in addition to the utility power supply. Design the sensors that can be used for more kitchen parameters. Apply various techniques to make the system more secure.

SOURCE CODE:

```
import ibmiotf.application  
import ibmiotf.device  
import sys  
from cloudant.client import Cloudant  
from cloudant.error import CloudantException  
from cloudant.result import Result, ResultByKey  
#Provide your IBM Watson Device Credentials
```

```
import time
```

```
organization = "1gn1jz"
```

```
deviceType = "abcd"
```

```
deviceId = "1100"
```

```
authMethod = "token"
```

```
authToken = "P(WWiF?stWik4h5FzB"
```

```
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()
```

```
deviceCli.connect()
```

```
client = Cloudant("65f86065-364f-485f-b807-d79248668031-bluemix",  
"b1d007d7c9fe25d3b3db9c222dc6b6d84d28102242f86f5a9021284a436  
12b2e",
```

```
url="https://65f86065-364f-485f-b807-d79248668031-bluemix:b1d007d7  
c9fe25d3b3db9c222dc6b6d84d28102242f86f5a9021284a43612b2e@65  
f86065-364f-485f-b807-d79248668031-bluemix.cloudantnosqldb.appdo  
main.cloud")
```

```
client.connect()
```

```
database_name = "doorbell"
```

```
while True:
```

```
    l='true'
```

w=100

j=45

data = {"d":{"leakage" : l, 'weight': w, 'jar': j}}

my_database = client.create_database(database_name)

if my_database.exists():

print("{database_name}' successfully created.")

json_document = data

new_document = my_database.create_document(json_document)

if new_document.exists():

print("Document '{new_document}' successfully created.")

def myOnPublishCallback():

print ("Published data to IBM Watson")

**success = deviceCli.publishEvent("Data", "json", data, qos=0,
on_publish=myOnPublishCallback)**

if not success:

print("Not connected to IoT")

time.sleep(10)

deviceCli.disconnect()

