Cloud based Smart Kitchen using IoT

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Abstract--- **Internet of Things (IoT) is emerging as a disruptive technology for a business opportunity. Nowadays, home automation is gaining huge popularity due to many advantages. One of the preventive measures to avoid the danger associated with gas leakage is to install a gas leakage detector at vulnerable locations. Although much of the work has been done until today to realize the Internet of Things (IoT) into practice, most of the work focuses on resource constrained nodes, rather than linking the existing embedded systems to the IoT network. IoT allows objects to be sensed and controlled remotely across existing network infrastructure. It also provides efficiency, accuracy, comfort and economic benefit. Our work here tries to enhance the Internet oriented approach to control kitchen using IoT. To alert on Liquefied Petroleum Gas (LPG) leakage and preventing any unwanted incident, we have built a device which will do the area monitoring continuously. There is a gas detector which will detects the presence of gases in an area, often as part of a safety system, where it can sound an alarm to operators in the area where the leak is occurring, giving them the opportunity to fix it. Hereby, it will be beneficial for the kitchen households and in hotel management. The gas sensor provides data to Node MCU, and then the results are displayed on Thingspeak and Putty at any instant.**

Keywords--- **IoT, Sensors, LPG, Thingspeak, Putty.**

I.INTRODUCTION

IoT has changed the life of human beings. Enormous increase in users of the Internet and modifications on the internetworking technologies enable networking of everyday objects. Each thing is uniquely identifiable through its embedded computing system within the internet infrastructure. Internet of Thing is all about physical items talking to each other, machine-to-machine communications and person-to-computer communications will be extended to things. In the consumer market, IoT technology is most synonymous with products pertaining to the concept of the "smart home", including devices and appliances (such as lighting fixtures, thermostats, home security systems, cameras, and other home appliances) that support one or more common ecosystems, and can be controlled via devices associated with that ecosystem, such as smartphones and smart speakers. IoT is also used in healthcare systems. There are a number of concerns about the risks in the growth of IoT technologies and products, especially in the areas of privacy and security, and consequently, industry and governmental moves to address these concerns have begun, including the development of international and local standards, guidelines, and regulatory frameworks. ThingSpeak is an open-source software written in Ruby which allows users to communicate with internet enabled devices. PuTTY is a free and open-source terminal emulator, serial console and network file transfer application. It supports several network protocols, including SCP, SSH, Telnet, rlogin, and raw socket connection. It can also connect to a serial port.

II. LITERATURE SURVEY

Arun Manhas and colleagues [1] build a model to detect Gas leakage in home, hotels, schools and other domestic areas, and gives alert message to the surrounding people. This paper is an implementation of the same using MQ-5 gas sensor Sometimes if the burner is left on by mistake, the consumer could be alerted about the problem. If the burner is on and there is no vessel on top of it, an alarm goes off.

Vasudev Yadav and colleagues [2] devised the model of Microcontroller based LPG Gas Leakage Detector When target combustible gases exist, the sensor conductivity is higher along with gas concentration rising. Once few milliseconds delay, it conjointly activate fan for throwing gas out and continue send messages as "GAS LEAKAGE" to your mobile no. subsequently the stepper motor turns off the switch of the cylinder.

Muhammad Siddik Hasibuan and colleagues [3] built a model of LPG Gas Leak Detection Tool with SMS the way this tool works is when it is turned on, the sensor will work to transfer LPG gas and send data according to the LPG gas level it detects. The higher the LPG gas is detected, the higher the voltage released when the program is run the system will immediately detect LPG gas detected by the sensor.

Asif Bin Karim and colleagues [4] Monitored food storage humidity and temperature data using IoT Combining the results with MATLAB environment, the upcoming data can be also forecasted through the basic knowledge of machine learning NodeMCU

is a kind of module that consists an ESP8266 Wi-Fi along with a microcontroller with one analog and 12 digital pins, for which is more robust than an Arduino board. Our research is mainly based on NodeMCU for its compactness.

Wan-Tzu Chang and colleagues [5] developed An automated alarm system for food safety by using electronic invoices Invoices had been used in food product traceability, however, none have addressed the automated alarm system for food safety by utilizing electronic invoice big data. In this paper, we present an alarm system for edible oil manufacture that can prevent a food safety crisis rather than trace problematic sources post-crisis.

III. Proposed System

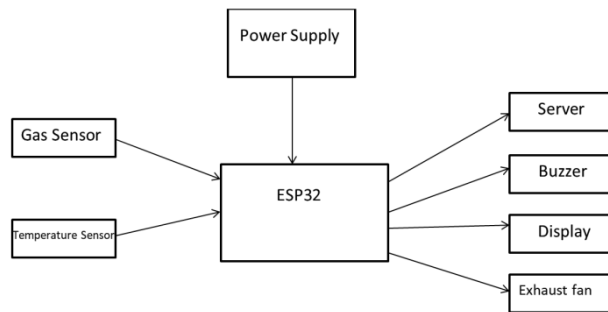The block diagram of the proposed system is shown in Fig.1:

Fig. 1 Block Diagram of smart kitchen using IoT

Firstly,give smoke/gas to MQ2 sensor.MQ2 gas sensor will detect the gas level.If the gas level is above or equal to 240,then buzzer will gets activated and hence exhaust fan also gets on.The gas level will get displayed realtime on Thingspeak cloud and Putty.We can access gas level at anytime and anywhere through the Thingspeak cloud.If the gas level is below 240 then buzzer and exhaust fan will remain deactivated.So,a person will get an idea of gas leakage in kitchen by continously monitoring the Thingspeak cloud.

Temperature of surrounding kitchen at any instant will gets displayed on LCD.Load cell is used to detect the wastage of food and daily consumption of gas.Remaining food is measured using load cell ,by placing food on utensil followed by load cell.For measurement of daily consumption of gas,the weight of cylinder is taken before using it and then weight of cylinder is taken after using it during a whole day,so consumption of per day gas will be obtained.
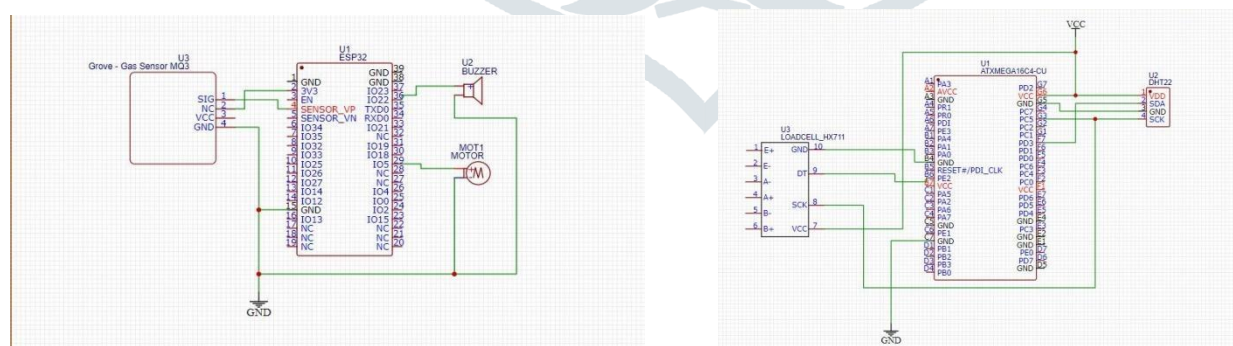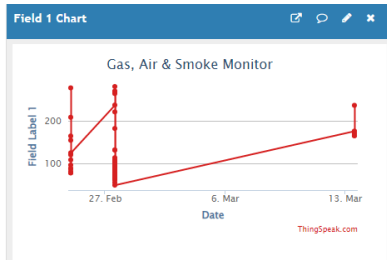
The circuit diagram of proposed system is shown in Fig.2:

Fig.2 Circuit Diagram

IV. Results

Gas level >=240 – Buzzer ON,exhaust fan ON

V. CONCLUSION

- Detected LPG gas leakage, smoke level
- Monitored kitchen temperature.
- Measured per day consumption of gas.
- Purified air of surrounding of kitchen
- Cost efficient

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