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IoT- Based Marriage Hall

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Abstract- In today's times ,marriage halls in india are facing many issues including the parking problems, safety issues related to fire, noise concerns,food wastage etc. Thus to avoid such irregularities we propose this solution. The project aims to safeguard any person against fire hazard by sending notification on phone. Further it also informs a person about the availability of parking slots.

Keywords- Blynk,smoke sensor,Ir sensor,Wifi Module,Embedded C.

I. INTRODUCTION

Marriage halls in India faces a pool of problems.It is no longer seen as place to share the happiness due to its outdated infrastructure and filthy surroundings. A recent survey stated many peoples avoid attending marriages because of ill-managed conditions of marriage halls.Also in india as the guest list is too lengthy,accommodation of the person as well their vehicles is tough job.Thus smart use of technology is highly required to manage this activities.Lastly, as crowd is too large,their safety is the most important concern.

Hence deployment of sensors to enhance the fire safety can help to prevent any fatal accidents.

II. LITERATURE REVIEW

The study of [1] discussed about cloud based car parking ,it is a technique to decrease the time consumption as well as gas for finding parking spaces.They operate with simulation tools for casting it's system architecture also executed a real scenerio.They also executed wireless sensor network and Rfid for the car park and give rise to a large amount of data and was pass to cloud for preparing .The pitfall of this case study was they have not contemplate the cost of sending maximum amount of generated data

In this paper[2], They have presented a smart smoke alarm system, comprising of wireless sensor network , classification calculation, and visual interface. Issues featured in the paper were those identified with low exactness and frail practicality of traditional smoke alerts. in this project they have created such a model which overcomes the problems such as low precision or false alarms or wearing of copper wires at high temperature . The solution brought up in this paper was using ML for data accuracy and for multipoint data transmission zigbee was implemented. so overall they have successfully resolved the problems faced in traditional smoke sensor.The only limitation found was that there were no proper network communications and external intrusion.

This paper[3] has introduced a home management system. This paper is especially targeted on overcoming everyday issues faced by the individuals in world wherever regular power cut-off, unmanaged urbanization, lack of workforce in agriculture and farming, etc area unit blatantly evident. Our prototypic system is applicable to time period home security,automation, watching and dominant of remote

systems. This implementation provides Associate in Nursing intelligent, snug and energy economical home automation system. It additionally assists the previous and otherwise abled persons to manage the appliances in their direct a stronger and easier approach.

III. METHODOLOGY/EXPERIMENTAL

A. Components /Theory

MQ2 Gas sensor

MQ2 is one of the commonly used gas sensors in MQ sensor series. It is a Metal Oxide Semiconductor (MOS) type Gas Sensor also known as Chemiresistors as the detection is based upon change of resistance of the sensing material when the Gas comes in contact with the material. Using a simple voltage divider network, concentrations of gas can be detected. It works on 5V DC and draws around 800mW. It can detect LPG , Smoke Alcohol, Propane ,Hydrogen, Methane and Carbon Monoxide concentra tions anywhere from 200 to 10000ppm.

Fig.1

IR SENSOR

The IR sensor module consists mainly of the IR Transmitter and Receiver, Opamp, Variable Resistor (Trimmer pot), output LED IR LEDs have light emitting angle of approx. 20-60 degree and range of approx. few centimeters to several feets, it depends upon the type of IR transmitter and the manufacturer.

Fig.2

The NodeMCU (Node MicroController Unit) is an open-source software and hardware development environment built around an inexpensive System-on-a-Chip (SoC) called the ESP8266. The ESP8266, designed and manufactured by Espressif Systems, contains the crucial elements of a computer: CPU, RAM, networking (WiFi), and even a modern operating system and SDK. That makes it an excellent choice for the Internet of Things (IoT) projects of all kinds.

Fig.3

BLYNK APP

Blynk was designed for the Internet of Things. It can control hardware remotely, it can display sensor data, it can store data, vizualize it and do many other cool things. The Blynk App allows to you create amazing interfaces for your projects using various widgets we provide.It allows you to create one or more projects. Each project can contain graphical widgets, like virtual LEDs, buttons, value displays and even a text terminal, and can interact with one or more devices. With the help of the Blynk library, it is possible to control Arduino or ESP32 pins directly from your phone, without having to write any code at all.

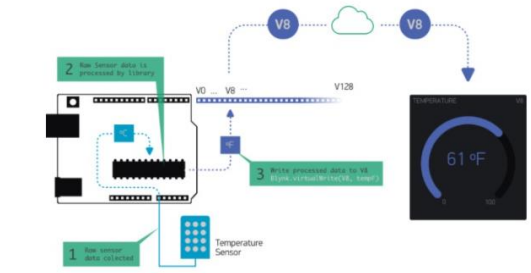

Fig.4

Theory- First the IR sensor will detect if any car is parked or not and notify the user about the availability, as he/she enter the marriage hall.Also once connected to the server, the person will receive notification in case of fire outbreak.This is done by the smoke sensor which will sense C02 or the LPG gas.All the sensors are connected centrally with the wifi module(NodeMcu) which receives and sends the data between sensor and server.

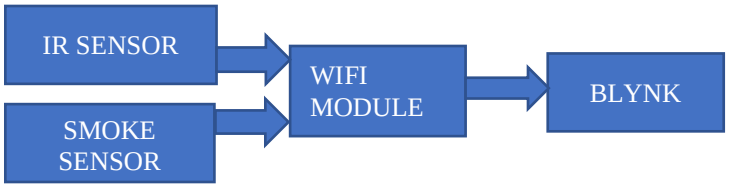

Fig.5

IV. RESULTS AND DISSCUSIONS

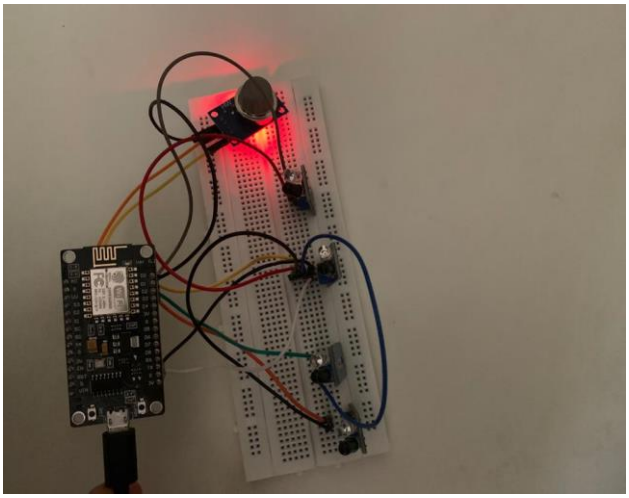

Fig.6

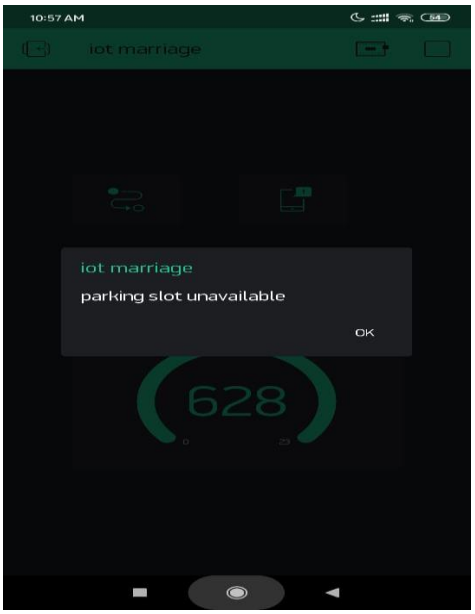

Fig.7

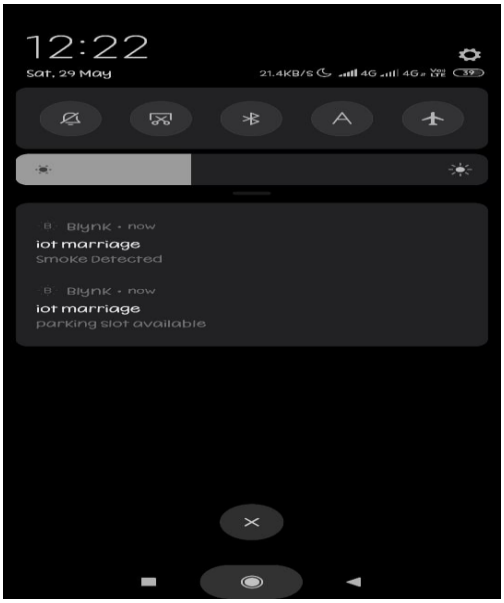

Fig.8

In the above project, we observed:-

1. When the IR sensor value equal to 1 the person gets notification that "Parking slot is unavailable" whereas when it is equal to 0 the person gets notification that "Parking slot is available."
2. In order to maintain the best safety standards we have kept the smoke sensor threshold at 500 ppm.This implies if the value crosses 500 ppm you will receive notification that "Smoke is detected"

V. LIMITATIONS

In the project,information is limited to availability of slots and no other details is presented to the user.Also the value of smoke sensor is subjected to large fluctuation and thus minor discrepancies are observed in Output.

VI. FUTURE SCOPE

In future, options like automatic billing system, also fully automated system using multilayer parking method,Safety measures such as vehicle no. tracing, driver face recognition etc can be implemented.Also provision can be made for regulating the noise level. Moreover data related to food can be generated and analyzed using sensors and cloud.

VII. CONCLUSION

The paper introduces an IoT based project aimed providing smart and efficient parking system. Thus solving most common problems those including the traffic congestion and car safety.Further the project enhances the fire safety in marriage halls by deploying cloud server which interacts with the sensor and transmits the required data.

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