COPY RIGHT

ELSEVIER
SSRN

Title **Home Automation System using IOT**

Paper Authors **Mohammed Basita Tashfeen,Doddapuneni Niharika,Eppalapalli Sai Varun**

Mohammed Areef,G. Malyadgri

USE THIS BARCODE TO ACCESS YOUR ONLINE PAPER

To Secure Your Paper As Per UGC Guidelines We Are Providing A Electronic Bar Code

Home Automation System using IOT

Mohammed Basita Tashfeen[1], *[1]20Q91A0411, Electronics and Communications Engineering, Malla Reddy College of Engineering*

Doddapuneni Niharika[2], *[2]20Q91A0429, Electronics and Communications Engineering, Malla Reddy College of Engineering*

Eppalapalli Sai Varun[3], *[3]20Q91A0435, Electronics and Communications Engineering, Malla Reddy College of Engineering*

Mohammed Areef[4], *[4]20Q91A0439, Electronics and Communications Engineering, Malla Reddy College of Engineering*

G. Malyadgri[5] *,[5]Assistant Professor, Electronics and Communications Engineering, Malla Reddy College of Engineering*

Abstract –
The project is to develop a system, which uses mobile technology that keep control of the various units of the automobiles, which executes with respect to the signal sent by mobile. Now a day's every system is automated in order to face new challenges in the present day situation. Automated system has less manual operation, so that the flexibility, reliabilities are high and accurate. Hence every field prefers automated control systems.

Especially in the field of electronics automated systems are doing better performance. Probably the most useful thing to know about the global system for mobile communication is that it is an international standard. If you travel in parts of world, WIFI is only type of cellular service available. Instead of analog service WIFI was developed as a digital system using TDMA technology. For utilization of appliances the new concept has been thought to manage them remotely by using WIFI, which enables the user to remotely control switching of domestic appliances. By a simple SMS sending to the WIFI modem at remote place, the devices can be turned ON/OFF and the status of the devices can be sent to the prescribed mobile number programmed in the microcontroller.

The range of appliances that can be controlled through telex- remote systems are many in numbers. Some of them are as follows and this depends upon the usage priority of the appliances i.e. Industrial appliances, Music System or other electrical/electronic appliances.

INTRODUCTION

In the realm of electricity provision, the interface between providers and consumers often involves manual meter readings conducted by temporary or contracted personnel. This traditional approach, while functional, presents challenges such as data discrepancies and logistical hurdles, especially in areas with adverse atmospheric or geographical conditions. To streamline this process, smart electrical energy meter technologies have been developed over the past decade, aiming to automate consumption measurement and billing procedures. However, in regions like Malaysia, many households still rely on conventional electro-mechanical watt meters, necessitating monthly visits from meter readers for billing purposes.

These meters, whether traditional or electronic, play a crucial role in quantifying energy consumption for both residential and commercial entities. While early electronic meters mirrored their analog counterparts in functionality, they offered digital precision and additional data tracking features, including voltage, power readings, and consumption timestamps. Yet, despite technological advancements, nations like India grapple with a persistent power crisis, exacerbated

by rising industrialization and insufficient generation capacity. The resulting power shortages not only disrupt daily life but also strain industries and hinder economic growth, highlighting the critical importance of reliable electricity supply in modern society.

In the face of escalating demand and dwindling resources, addressing power shortages and enhancing energy infrastructure emerge as urgent imperatives for countries like India. Beyond mere convenience, reliable electricity access underpins economic productivity, public welfare, and technological advancement, making sustainable energy solutions a global priority in the 21st century.

EXISTING MODEL

Existing system, presents here is to controlled industry electrical appliances through RF based remote system. From any place without any line of sight around the house or industry, RF based wireless remote-control system can change the state of the electrical appliances either in on state or off state. The controlling circuit is built around RF transmitter and RF Receiver modules which are operating at 434 MHz along with encoder IC HT12E and decoder IC HT12D with few passive components. The four different channels at the encoder are used as input switches and the four channels at the decoder output are connected to the appliances through a relay. Here the transmission technique is amplitude shift keying (ASK) and the circuit is powered with 9 V. The main objective of this work is to build the circuit without any programming skill and to make it work without line-of-sight requirement using the RF technology.
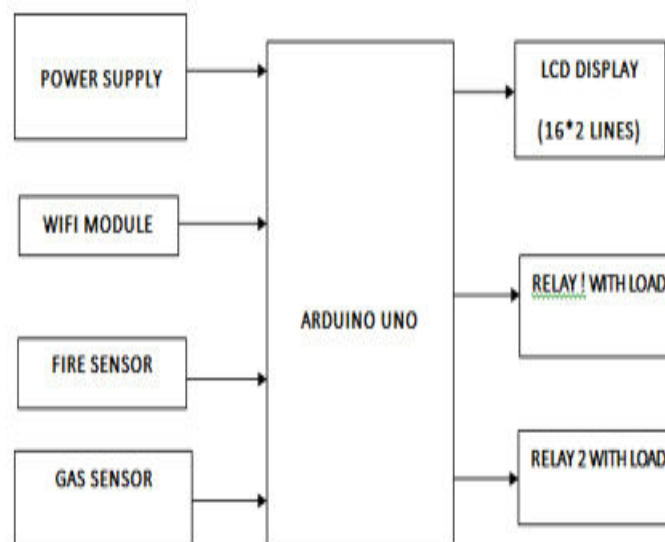
PROPOSED MODEL

Fig - 1: Block Diagram

In this modern world, Analog Electronics devices are becoming less popular and digital electronics components are becoming more advanced and popular day by day. Home devices control system is also an example of modernized digital world. People are using cellular mobile phone network to communicate each other. WIFI modules are basic elements of these phone networks. WIFI stand for global system of mobile communication. It is also used in many electronics projects among engineering students and also very popular in industry. WIFI based projects are used to control

devices through mobile from remote locations. For example you want to control any machine from remote locations using your mobile phone, Can you do it? The answer to this question is yes. We can easily turn on and turn off devices using WIFI modules and mobile phones. By using above concepts, home devices control system is designed to control home devices from mobile phone.

This project uses regulated 5V, 1A power supply. 7805 three terminal voltage regulator is used for voltage regulation. Bridge type full wave rectifier is used to rectify the ac output of secondary of 230/12V step down transformer.

1. HARDWARE DESCRIPTION
This section gives brief description about hardware components

A. Power Supply
The power supply plays a vital role by furnishing electrical power to all electronic components. It meticulously delivers the precise voltage and current required for optimal operation, including sensors and displays. It serves as the essential electrical source that sustains the functionality of the entire system.

C. 16 x 2 LCD

The LCD (Liquid Crystal Display) is the visual interface. It shows information in a clear, easy-to-read format. It's like the screen on your phone, but in this case, it displays messages about alcohol detection and safety status for the driver.

Fig - 4: 16 x 2 LCD.

D. Fire Sensor
A flame detector is a sensor designed to detect and respond to the presence of a flame or fire. Responses to a detected flame depend on the installation. When fire burns it emits a small amount

of Infra-red light, this light will be received by the Photodiode (IR receiver) on the sensor module. In this project we are using an IR based flame sensor.
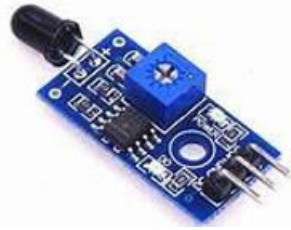

Fig – 5: Fire Sensor

B. Gas Sensor

Fig - 2: Power Supply.

E. Relay 5V

The relay acts as a switch. It's like a digital gatekeeper, controlling the flow of electricity to various components. When triggered, it can turn on or off devices like the motor, allowing for specific actions to be taken based on the alcohol detection results.

A gas sensor is a device which detects the presence or concentration of gases in the atmosphere. Based on the concentration of the gas the sensor produces a corresponding potential difference by changing the resistance of the material inside the sensor, which can be measured as output voltage. Based on this voltage value the type and concentration of the gas can be estimated.
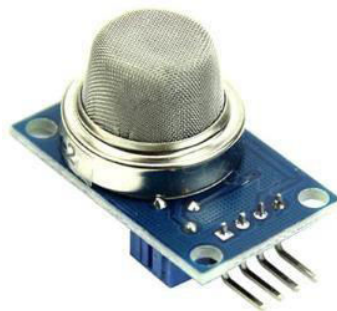

Fig - 3: Gas Sensor

F. Arduino Controller

The Arduino controller serves as the central processing unit of your project, functioning as the core controller. It processes data, executes logical decisions, and oversees the coordination of all interconnected components. In essence, it acts as the pivotal control unit, managing critical functions and the implementation of safety measures.

2. SOFTWARE DESCRIPTION

This section offers a concise overview of the software components integral to the project's functionality.

A. Arduino IDE

The Arduino Integrated Development Environment (IDE), also known as Arduino Software, provides a comprehensive platform for Arduino microcontroller programming. It includes a text editor for code writing, a message area for status updates, a text console for communication, and a toolbar with common functions. Arduino code is referred to as "sketches" and is saved with a .ino file extension. The IDE also offers libraries for code modules, supports third-party hardware, and features a serial monitor for debugging and real-time data exchange, streamlining the development process.

Fig - 8: Arduino Software.

3. ADVANTAGES

- User-Friendly Controls.
- The Convenience of Smart Home Solutions.
- Better Security.
- Intelligent Home.
- Energy Savings & Management.
- Remote Access.
- Enhanced Monitoring and Communication.
- Customization.

4. APPLICATIONS

- Doors
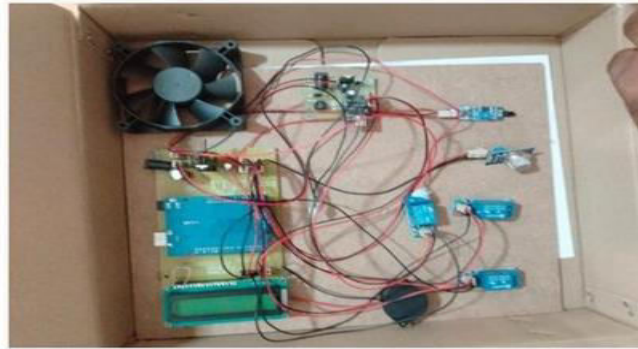- Lighting
- Kitchen
- Temperature control

5. RESULT

Fig - 9: Final Prototype of Home Automation System Using IOT

6. FUTURE DEVELOPMENTS

In future mostly CAMERA module or any wireless controlling techniques are using to information sent to authority peoples of loads operating system. This will ensure more safety and supervision.

7. CONCLUSION

Thus with the use of this Article we can make the system easy and less time consuming. Also with this we have reduced the disadvantages of the current system. One can establish user friendly and direct interfacing between the consumer and the distributor without any external interference. Also with this, the accuracy of the system increases as the gross errors, observational errors, etc. decreases. Thus with this we can conclude, that a time efficient, reliable, and accurate system analysis can be obtained which is indeed economical and user friendly.

REFERENCES

[1] Sivanagaraju, S. and Sreenivasan, G. "Load frequency Control - II". Power System Operation And Control. Chennai, India

[2] Criteria for economically efficient electricity wholesale markets - Criteria for economically

efficient wholesale markets

[3] Independent Energy collapses with customers still owing £119m in bills - The Independent

[4] "10 Jan 2008 Grid project lets consumer handle electricityuse - United States". IBM. 2008-01-10. Retrieved 2012-02-02.

[5] "Let there be light". The Telegraph. 26 April 2009.

[6] Energy crisis from Wikipedia https://en.wikipedia.org/wiki/ energy_crisis

[7] http://www.conserve-energy-future.com/causes-and- solutions-tothe-global-energy-crisis.php

[8] WIFI Based Wireless Load-Shedding Management System for Non Emergency Condition by Patil P T1,Dattatraya raut2, Sagar Sutar3, Sandesh Narute4 from International Journal of Modern Trends in Engineering and Research

[9] WIFI Based Power Management by Kaukab Naz, Shahida Khatoon, and Ibraheem