IOT HOME AUTOMATION WITH GAS LEAKAGE SECURITY AND FIRE SAFETY SYSTEM

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ABSTRACT
Any technology that allows a gadget to connect to the Internet is referred to as the "Internet of Things." For such systems, data collection is crucial. Afterward, the data is used for internet-based control, monitoring, and data transmission to other devices. Smart House technology is the future of domestic technology, with the goal of offering and distributing a range of services both within and outside the home via networked devices that combine and integrate all of the many applications and intelligence behind them. These smart gadgets have the capacity to communicate with one another thanks to the continual availability of a broadband internet connection. As a result, smart home technology is now integrated into the Internet of Things (IoT).We provided a literature review on Smart Home Automation in this research study, which gives home owners peace of mind by allowing them to monitor and protect their houses from away. an electronic system that detects gas leakage and smoke giving visual level indication using LEDs. In case of high concentration gas or smoke detected, the system wirelessly activates a relay to switch off the mains thus preventing a major possibility of fire accident and also gives audio alarm and turn son the pumps.

INTRODUCTION
A smart house is one in which appliances can be controlled and monitored remotely via internet-connected gadgets. Smart home technology allows home owners to operate smart appliances from their smart phones or other connected devices, increasing security, comfort, convenience, and energy savings. Devices and systems for smart homes that are connected to the internet of things (IoT) frequently interact, exchanging data on consumer usage and automating operations depending on the preferences of the home owners. Home automation provides homeowners peace of mind by allowing them to keep a watch on their houses from a far and avoid risks such as an unlocked front door or a forgotten coffee maker. Users' convenience needs may be addressed in smart homes. Consumers can be more productive with home automation. Rather than operating the air conditioner all day, a smart home system might learn how people live and act in order to keep the house cool when they get home from work. Grass will only be watered when a smart irrigation system requires it, and only with the exact amount of water necessary, thanks to IoT-based home automation. Customers may save money and natural resources by using less electricity, water, and other resources with home automation. A smart home is more than a collection of smart devices and appliances; it's a system of networked objects that can be managed from anywhere. A master home automation controller, often known as a smart home hub, is in charge of controlling all of the gadgets. A smart home hub is a physical device that connects to the internet and acts as the brain of the system, detecting, processing, and transferring information wirelessly. It brings together all of your smart home apps into a single app that customers can use from any where. We introduced Smart Home automation based on IoT utilizing the Arduino&Blynk Application in the first section of this research paper. The literature review of work done by various authors in the field of Smart Home automation based on IoT utilizing the Arduino &

Blynk Application is presented in the second section of the research study. We offered a comparative assessment of the work done by many authors in the field of Smart Home automation based on IoT utilizing the Arduino &Blynk application in the third and fourth sections of this research paper and presented their work in a tabular style. Finally, we found that Internet-of-Things-based Home Automation solutions have several advantages over wired systems, including ease of use, ease of installation, avoidance of the complexity of running through cables or weak electrical connections, problem detection and triggering, and most importantly, mobility.

LITERATURE SURVEY

In this research paper[1]rasp berry provides security and various ways to control the devices in the house. Because of mobile phones the living is comfortable and at the same time it can be easily accessible through portable devices. It gives users all the rights to decide which makes it reliable as it always asks before taking any decision, it helps when there are any necessary decisions, it helps when there are any necessary decisions to be taken and they can be taken fast in case of an emergency. In the proposed model of paper [2] the accuracy of Implementations meets the expectation. This home automation system works according to user needs and demands and also the modes of function work as desired during the implementation. Users need to give respective commands through his/her smart phone and the system works according to the assigned algorithm. This project is flexible and user friendly and easy to use. So it can be said that this system has higher accuracy with great efficiency. In this paper[3], architecture for smart home control and monitoring systems using Arduino is proposed and implemented. It gives a basic idea of how to control different home appliances and provide security by using Arduino Uno controlled from a desktop application. In our project, we tried to implement an embedded system that meets the main functions of home automation for the management of lighting, habitat security, and temperature & humidity control. For these reasons, a desktop application was created to interact with an Arduino via the serial port. In paper [4],The light sensor was properly configured to detect when the laser was broken, while not accidentally tripping due to different ambient light environments. In addition, the temperature and light control subsystem outputs are confirmed to be working.Specifically, the firmware has been tested and is confirmed to be outputting the appropriate signals to the subsystem BJT switches which control lighting and furnace operations. Overall, the project has been working to design specifications and has maintained a high quality standard which can be integrated into modern homes. In the main paper no [5], we found out that in this era of computers, smart home technology has become imminent. It's a smart technology that gives us a different level of living standard.We are fully dependent on a system where everything is fully 3 automatic. We are using sun tracking technology so we can get maximum efficiency of solar power.It has two different user functions; one is controlled manually and other automatically. Security is password and/or biometrically protected and sensing ability gives this home strength to protect itself. In the final research paper, we observed that the raspberry pi based home security system has been successfully developed and verified. Not only has the raspberry pibeen helped for live streaming but also for the camera as a movement recognitioncomponent.Thecapturingandcausationnotificationwouldbedoneiftherewasanydetectionofmovement.Theinferenceofthetestsperformedonthesystemconfirmsthatthesecuritymechanismprovidesoptimalobservations.

GAS LEAKAGE SECURITY AND FIRE SAFETY

The combination of gas and heat sensors can make a valuable contribution to the safety of these processes. The detectors can be used to trigger alarms if a specified concentration of the gas is exceeded or fire occurred. This can provide an early warning of a problem and help to ensure people safety. However, a detector does not prevent leaks occurring or indicate what action should be taken. It is not a substitute for

safe working practices and maintenance.

IOT HOME AUTOMATION SYSTEM

The internet of things (IoT) is a computing concept that describes the idea of everyday physical objects being connected to the internet and being able to identify themselves to other devices.The term is closely identified with RFID as the method of communication, although it also may include other sensor technologies,t echnologies wireless or QR codes.The IoT is significant because an object that can represent itself digitally becomes something greater than 3 the object by itself. No longer does the object relate just to its user, but it is now connected to surrounding objects and database data. When many objects act in unison, they are known as having "ambient intelligence." Bluetooth based home automation system using cell phones. In Bluetooth based home automation system the home appliances are connected to the Arduino board at input output ports using relay. The program of Arduino board is based on high level interactive C language of micro controllers, the connection is made via Bluetooth.The password protection is provided so only authorized users allowed to access the appliances. The Bluetooth connection is established between Arduino board and phone for wireless communication. In this system the python script is used and it can install any of the Symbian OS environments, it is portable. One circuit is designed and implemented for receiving the feedback from the phone,which indicate the status of the device.

PROPOSED SYSTEM

The system is an intelligent system, as it does not create nuisance by continuously sounding alarm but the alarm stops beeping once the concentration of the gas in the atmosphere after leakage goes below the set point and opens the valve again for operations. This work will minimize losses occasioned by explosions due to gas leakages and improve safety of life. In particular gas sensor has been used which has high sensitivity for propane (C_3H_8) and butane warns by(C_4H_{10}sending) leakage However, system the consists former of fire incident gas leakage and sends SMS to the house holder. This does not make provision for halting further fire incident and gas leakage. GSM module is used which alert the user by sending an SMS. Another approach uses a smart security phone attached gas leakage sensor that senses leakage and sounds an alert alarm as well as sending a SMS to the home owner and emergency services. The design of a wireless LPG leakage monitoring system is proposed for home safety. This system detects the leakage of the LPG and alerts the consumer about the leak by a SMS and as an emergency measure, the system will turn off the power supply, while activating the alarm. Leak detection module consists of MQ-2 gas sensor to detect amount of combustible gas present in the surrounding.

RESULT

IOT HOME AUTOMATION
GAS LEAKAGE AND FIRE SAFETY SYSTEM
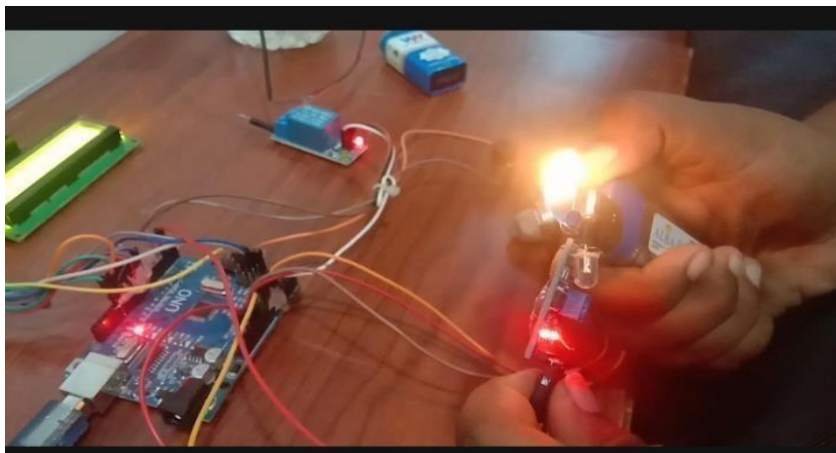
CONCLUSION

The electrical system cost effective by using a renewable source of energy i.e. solarenergy. In addition, it makes this system user friendly by giving the facility of handling various home appliance with the help of the android application present in their mobile phones and to save electricity, time and money. This system also helps the user to protect their homes from burglars when they are away from the home byusingalarmasthealarmwillstartringingwheneveraburglartriestoenterthehouseand the person will receive a message on his mobile phone whenever some other person will try to enter our house.

SCOPEOFPROJECT

The circuit is basically on the gas sensor, temperature sensor and the Programmable Integrated Circuit(PIC). The gas sensor and temperature sensor could be treated, basically as variable resistor which value depends on gas concentration in air and temperature changes respectively .Both of these sensors have high sensitivity.The gas sensor chosen is MQ2.

It can detect gas concentration in the air from 300 to 1000 ppmwill be set as the dangerous level. The sensor used to detect the fire is LM35 heat sensor.

It can detect temperature change from-55°Cupto150°C.After calibrating the sensor, it will only measure from 0°C to 100°C. 55°C will be set as fire burning starting temperature.

These sensors will be connected directly and controlled by a micro controller. PIC16F1938 is chosen to makes the detector much simpler.

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