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A Survey on Self Healing of Application Based on Alert Monitoring Tool.

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ABSTRACT: This project put forwards the design of home automation and security system using Android ADK. The design is based on a standalone embedded system board Android ADK(Accessory Development Kit) at home. Home appliances are connected to the ADK and communication is established between the ADK and Android mobile device or tablet. The home appliances are connected to the input/output ports of the embedded system board and their status is passed to the ADK. We would develop an authentication to the system for authorized person to access home appliances. The device with low cost and scalable to less modification to the core is much important. It presents the design and implementation of automation system that can monitor and control home appliances via android phone or tablet.

KEYWORDS: ADK, Embedded system, Android, Home Automation, Internet of Things.

I. INTRODUCTION

Today we are living in 21st century where automation is playing important role in human life. It has continuously influence many aspect of our day today lives. It had been developed to make human lives comfortable and give reliable security system. The “Home Automation” concept has existed for many years. The terms “Smart Home”, “Intelligent Home” followed and has been used to introduce the concept of networking appliances and devices in the house[7]. Home automation allows us to control household appliances like light, door, fan, AC etc. It also provides home security and emergency system to be activated. Home automation not only refers to reduce human efforts but also it is energy efficient and time saving. The main objective of home automation and security is to help handicapped and old aged people which will enable them to control home appliances and alert them in critical situations.

II. RELATED WORK

[1]KayleeMoser, JesseHarder, SimoonG.M.Koo[2014], explored the history and implementation of the internet of things and how it can be used in home automation and also for helping impoverished people save money on their basic needs. It discuss why smart home and its importance, for comfort ,energy saving and efficiency. It gave different models for web connectivity.

[2] A.R AL-Ali,M.AL-Rousan [2004],explored the design and implementation of a java based automated system that can monitor and control home appliances via WWW.The home appliances are connected to the input output port of embedded system board and the status are passed to the server.

[3] MansourH.Assaf, Ronald Mootoo,SunilR.Das,Emil M.Petriu,Voicu Groza, Satyendra Biswas [2012], discussed the development of a home security and monitoring system that works where the traditional security system that are mainly concerned about curbing burglary and gathering evidence against trespassing fail .

[4] Pavithra.D,Ranjith Balkrishnan[2015], proposed to implement iot used for monitoring and controlling the home appliances via WWW used portable device to interface communicate through an internet gateway by means of low power communication protocols like Zigbee,WiFi,etc.

[5] R.A Ramlee,M.A Othman,M.H Leong, M.M.Ismail, S.S.Ranjit[2013], proposed the over all design of home automation system with low cost and wireless remotr control this system is degine to assist and provide support in order to fullfil the need of elderly and disable in home.

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III. PROPOSED SYSTEM

Below given figure 1 is the block diagram of our system.

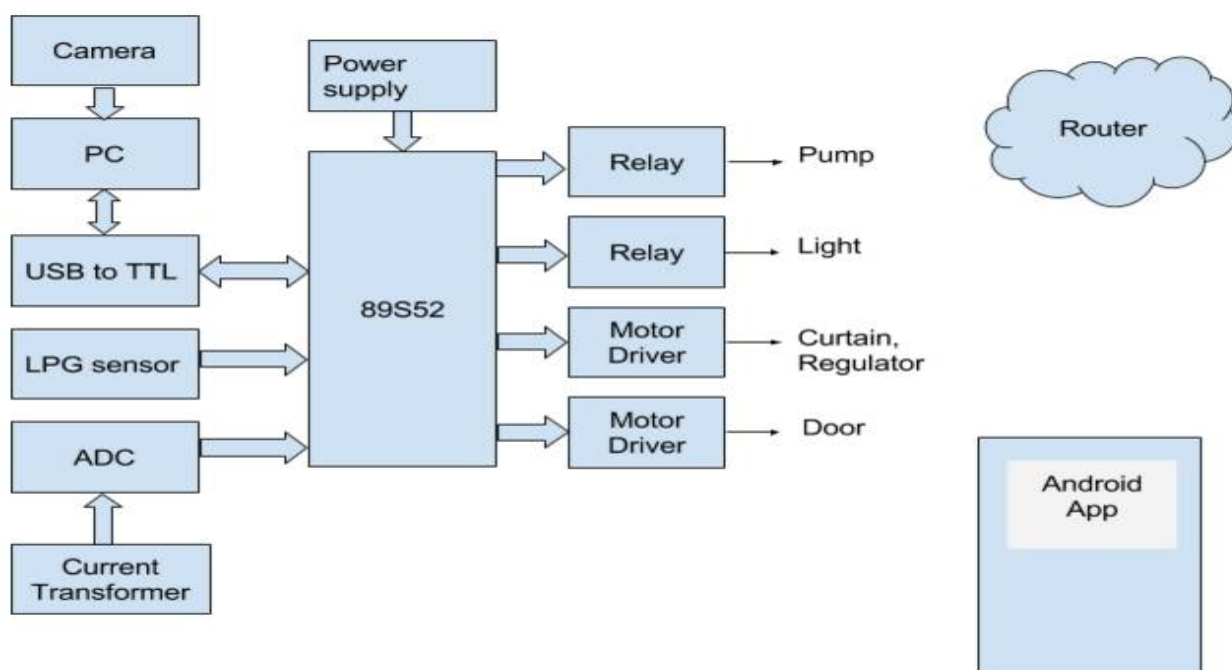


Fig 1: Block diagram of the system..

3.1. Flow of Working

- The main point in security system is the door lock which can be done using the biometric tool for human identification. For the identification we can use the eye vein. The camera can be placed near to the door. By using eye vein human identification can be done as per result door should be opened or not.
- The LPG sensor is used to detect the gas and if the gas leakage is detected then the regulator can be turned off automatically and this emergency notification can also be displayed in our android mobile. And after the regulator is turned ON we will again get a notification and also we can see the status through android.
- The current transformer is used to produce the alternating current which can be used to measure the electrical unit and as per unit used, that information is given to controller in digital form. By using ADC we can convert analog signal to digital form and feed to the microcontroller and bill generated.
- The relay is used to turn on and off the electronic equipment like fan, light etc. This can be done through android mobile.
- Android mobile can send the command through the internet. This command is received in PC. Microcontroller is connected to the PC.
- As per received command the desired appliances can be turned on or turned off. Or this can be done through timer based. So as per time they can work automatically.

3.2. Methodology

There are many security system but biometric is one of the most reliable since every individual is unique. So we are using eye vein for security purpose. And there are many times we forget to turn our light or taps off in this situation using these applications we can control and monitor our appliances and it's also used for safety purpose, if gas leakage occurs it will automatically turn the gas regulator off. We can easily access these devices from anywhere and at any time.



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3.2.1. Security System

Due to increasing security issues, More than any other system biometrics has gained many attraction during past several years in both academic and commercial domains. Peoples now prefer biometric security system more than any other since it is unique to every individual. Biometric system range from physical traits such as retina, face, iris, fingerprint, etc. to behavioral traits such as signatures, gait, etc. Techniques in non-visible spectrum are based on infrared imagery namely near infrared, short wave infrared, mid wave infrared and long wave infrared[9]. Among all the physical traits vein pattern prove to be more secured as blood vessels are underneath the skin and partially visible to naked human eyes, hence, it difficult for intruders to forge it. Due to unique physiology of vasculature network, they are fit to be used for biometric authentication. A detailed description of vein recognition technology, arrangement, infrared imaging is presented. A well defined classification has also been provided for vein pattern extraction strategies.

3.2.2. Monitoring and Controlling of Appliances

Using android application we can control and monitor many devices even when we are not around. This application mainly helps the old age and handicapped which will enable them to control home appliances and alert them in critical situations. We can also conserve resources and prevent any mishap.

- 1. Tap/light control:** In this system we monitor any overflow of water or if no one is using the electricity in a particular room. If a particular tap/bulb is on for an instance of time a notification will be given to user and the user can control the tap.
- 2. Electricity Bifurcation:** This will allow the user to monitor the total electricity consume by an appliances and their total cost is calculated.
- 3. Gas leakage detection:** If a gas leakage is detected by the gas sensor then the regulator will be automatically off by the motor.

3.3. System design

3.3.1 89S52

The AT89S52 is a low-power, high-performance CMOS 8-bit microcontroller with 8K bytes of in-system programmable Flash memory. The device is manufactured using Atmel's high-density nonvolatile memory technology and is compatible with the industry-standard 80C51 instruction set and pin out. The on-chip Flash allows the program memory to be reprogrammed in-system or by a conventional nonvolatile memory programmer. By combining a versatile 8-bit CPU with in-system programmable Flash on a monolithic chip, the Atmel AT89S52 is a powerful microcontroller which provides a highly-flexible and cost-effective solution to many embedded control applications.

3.3.2 Relay

A relay is an electrical switch that uses an electromagnet to move the switch from the off to on position instead of a person moving the switch. A relay switch can be divided into two parts: input and output. The input section has a coil which generates magnetic field when a small voltage from an electronic circuit is applied to it. This voltage is called the operating voltage. The output section consists of contactors which connect or disconnect mechanically.

3.3.3 LPG Sensor

MQ-6 sensor is a simple-to-use [liquefied petroleum gas \(LPG\)](#) sensor, suitable for sensing LPG (composed of mostly propane and butane) concentrations in the air. The MQ-6 can detect gas concentrations anywhere from 200 to 10000 ppm. MQ-6 semiconductor sensor is Combustible Gas Sensitive.

3.3.4 Motor Driver

L293D is a typical Motor driver or Motor Driver IC which allows DC motor to drive on either direction. L293D is a 16-pin IC which can control a set of two DC motors simultaneously in any direction. It means that you can control two DC motor with a single L293D IC, Dual H-bridge Motor Driver integrated circuit (IC). The L293d can drive small and quiet big motors as well.

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each query that arose. With all respect and gratitude, we owe our success to the writers of reference papers that are referred by us in completion of this paper work activity which will be useful in presenting our survey.

IV. CONCLUSION

The home automation using Internet of Things has been experimentally proven to work satisfactorily by connecting simple appliances to it and the appliances were successfully controlled remotely through internet. The system is fully secure because the door lock can be done using eye view monitoring. The designed system not only monitors the sensor data, like gas but also actuates a process according to the requirement, for example switching on the light when it gets dark. This will help the user to analyze the condition of various parameters in the home anytime anywhere.

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