

HOME AUTOMATION SYSTEM USING GSM

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Abstract

In this paper, we will deliberate how to control home appliances, safety and security system using GSM technology by using android application through android mobile phone. We will also show that we can control the appliances even in the absence of an android phone by sending a normal SMS. The advantage of using GSM technology is that we can control the home appliances from remote places anywhere in the world. This system allows the owner to control the appliances and to receive a feedback status of the home appliances by sending instructions in form of SMS as well as through an android application. For the home security system we are using an antitheft reporting system which will report the owner by ringing an alarm and by sending an SMS. Also for the safety system in case of fire or gas leakage it will report the owner by sending a SMS and also by ringing an alarm. Thus by using GSM technology, it provides the wireless access to the devices to be controlled.

1. INTRODUCTION

The wireless communication is increasing day by day. This has motivated us to use mobile phones to remotely control household appliances and to receive a feedback SMS about the security and safety of the house. In this paper we describe a remote appliance control system which can control different household appliances by sending a SMS from a mobile phone and monitor the safety and security of the house just by a SMS. This controller is extremely handy at places where we have to control the ON and OFF

switching of the devices as no wired connection is required between the switch and the home appliances as it can be controlled from any place in this world. The microcontroller would then control the home appliances based on the information given to it and send a feedback during a security breach and it also send a feedback during gas leakage or if a fire takes place. The proposed solution is easy to use, simple, secure, and robust and can also be controlled through android mobile phones through and android application. In this paper we describe a simple remote home

appliance control, security and safety system using GSM SMS (Short Messaging Service). A remote household appliance control has been described in using internet. A Bluetooth based home automation control is described. In a GSM based system for home automation is described which uses voice commands for control. In Voice command for home automation has been described. In this paper we describe a simple remote home appliance control using GSM SMS (Short Messaging Service).

2. RELATED WORK

Review of Foreign Studies: In their paper, Tan, Lee and Soh (2002) proposed the development of an Internet-based system to allow monitoring of important process variables from a distributed control system (DCS). This paper proposes hardware and software design considerations which enable the user to access the process variables on the DCS, remotely and effectively Potamitis, Georgila, Fakotakis, and Kokkinakis, G. (2003) suggested the use of speech to interact remotely with the home appliances to perform a particular action on behalf of the user. The approach is inclined for people with disability to perform real-life operations at home by directing appliances through speech. Voice separation strategy is selected to take appropriate decision by speech recognition

In the year 2006, S. M. AnamulHaque, S. M.

Kamruzzaman and Md. Ashraful Islam proposed a system entitled "A System for Smart-Home Control of Appliances Based on Time and Speech Interaction" that controls the home appliances using the personal computer. This system is developed by using the Visual Basic 6.0 as programming language and Microsoft voice engine tools for speech recognition purpose. Appliances can be either controlled by timer or by voice command. Ciubotaru-Petrescu, Chiciudean, Cioarga, and Stanescu (2006) present a design and implementation of SMS based control for monitoring systems. The paper has three modules involving sensing unit for monitoring the complex applications. A processing unit, that is microcontroller and a communication module that uses GPRS modem or cell phone via serial port RS-232.

3. IMPLEMENTATION

A home automation system is designed which can be controlled by any smartphone. The automation system connects with the smartphone through Bluetooth. The smart phone sends control signals to switch home appliances ON or OFF by an android app through Bluetooth interface.

The project is built on Arduino UNO and is used to control LEDs and four home

appliances connected to the Arduino through relays. The Arduino board is interfaced to an HC-05 Bluetooth module to pair with the smart phone.

GSM (Global System for Mobile communications) is an open, digital cellular technology used for transmitting mobile voice and data services.

GSM (Global System for Mobile communication) is a digital mobile telephone system that is widely used in Europe and other parts of the world. GSM uses a variation of Time Division Multiple Access (TDMA) and is the most widely used of the three digital wireless telephone technologies (TDMA, GSM, and CDMA).

GSM digitizes and compresses data, then sends it down a channel with two other streams of user data, each in its own time slot. It operates at either the 900 MHz or 1,800 MHz frequency band. It supports voice calls and data transfer speeds of up to 9.6 kbit/s, together with the transmission of SMS (Short Message Service).

In place of Bluetooth or Wi-Fi we are using GSM module, some of the advantages because of this are:

1. We can control and constantly monitor our home across the India.
2. We don't need any android phone or internet for this.
1. Network connectivity is one of the most common issues that smart device owners

will encounter due to short range of communication via Bluetooth to home automation

2. The Existing system also belongs to wireless domain but for a shorter range to communicate with its devices. The system can be controlled by system commands from a mobile through Bluetooth connectivity.

3. The user needs to install a mobile application called Bluetooth terminal. So, the user cannot control home appliance from far.

4. EXPERIMENTAL RESULTS

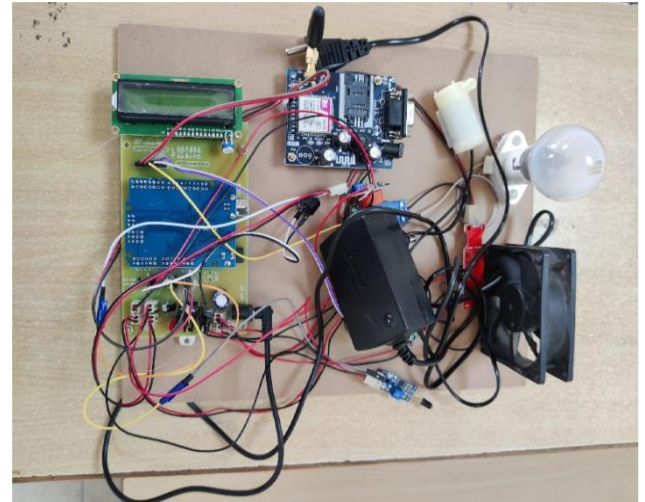
Home automation describes a system of networked, controllable device that work together to make your home more comfortable, customized, efficient and secure. In this device there are five main parts Arduino, GSM module, Relay drivers, Sim card and stepdown transformer.

Let's see the application home automation please I'm just using controller reunite and GSM module and to release sections to connect 2 different loads so I just connected microcontroller with LCD unit so which displays the status of system so which load is on which load is off and all the models which is functioning and GSM model I'm using through serial communication so the RX logic and the power and taking from controller pole please go to power supply lines and this is

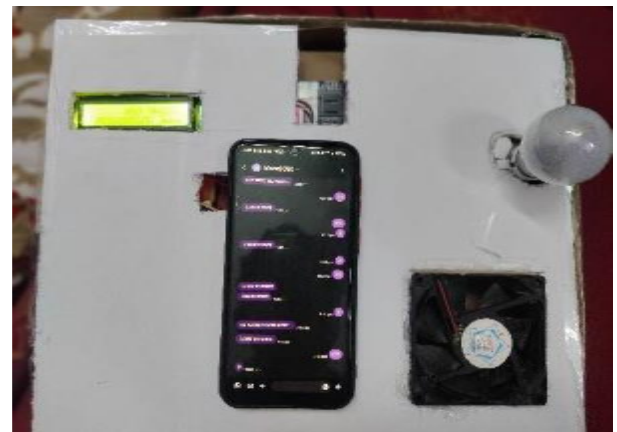
your RX ticks and common ground and I just contacted play coil with freely relay modules come with 3 pins VCC ground and input the input I'm giving from P 3.6 and P 3.7 pin so which are far to relay coils 2 inputs from I was an there are 2 communication lines and LCD is connected with poor Rs enabled and full data lines by 4 divided here I am using LCD in 4 bit more. We have connected a LED, LOAD FAN, and coming about sensors we have connected sensors they are WATER LEVEL SENSOR used to monitor the motor level in the water tank. FIRE SENSOR mainly used in detection of fire detecting in home appliance, many accidents occurs due to gas leaking. so, we came with a solution GAS LEAKAGE SENSOR.

So, these are my hardware connections related to this application so and now I am giving supply to the system through this system through this 12 volts one ampere adapter the power which is distributed to all the status of application you can display it on LCD screen home automation using GSM now this application waits for message from user and you need to give proper message with a standard format from your Android mobile show in my logic I given a standard format to turn on the load or return of the load so I have 2 individual messages to turn on fan and to turn on alight the message you need to

give as this follows format which has capital a to turn on the light and capital by to turn off the light now for the fan we need to turn on when on one to turn off the fan.



Picture of our project



Result of the project

5. CONCLUSION

It can be concluded that HOME AUTOMATION SYSTEM USING ARDUINO was a success. It is user friendly and it is cost effective. Also it can be concluded that the objectives of this project has been successfully met and they are as follows:

- Constructed a wireless home automation system controlled by a GSM based phone.
- Designed and implemented cost effective home automation system yet an efficient one.
- Designed a user friendly and a safe system to control home appliances especially aimed to aid the elders and handicapped.

6. REFERENCE

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