



Design A Control Device to Access Home Appliances

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Abstract

Our project based on home Automation system that device allows to operate your home from the comfort your home. Electrical device may be managed from anywhere in world thanks to computer and electronics technologies. As a result, more energy will be saved, and hence natural resources will be conserved. This can be accomplished with use of mobile phone. The Arduino Uno GSM module were used to create this system.

The electrical appliances can be controlled by sending text message from any mobile phone with GSM access in any area of the world. There are numerous Home Automation System on the market today. However, every system has advantages and disadvantages. The proposed system is simple to used and comprehend.

Keywords: GSM Module, Relay, Arduino, Controlling Home Appliances

Introduction

With the advent of several high-tech products and equipment, contemporary has helped us to make our lives easier. The ones that we use at home are the most prevalent. Televisions, Air conditioners, and lights for example, are all routinely used by everyone.

With the growth of technology, the nation of smart houses has emerged, in which a home is outfitted with specific features that allow its occupation to control a variety of automated gadgets. However, the residents can not remain at home all of the time. A smart house can be made smarter if control can be accessed even while the owner is not at home. On a cold winter night, for example, it would be fantastic if one could turn on the heating and microwave oven while arriving home from somewhere else.

In the twenty-first century, a mobile phone has become a necessity. Everyone has their own phone that they take with them at all times, including when travelling. Having ability to operate home appliances with your phone will user in a new era of smart control. It means that you can operate your house hold appliances from practically anywhere in word.

The appliances can control by sending SMS and update on their status.

Methodology

In this section discusses about used hardware and working for the system.

GSM Module

A GSM modem also known as a GSM module, is a device that connect to a network using GSM mobile phone technology. Mobile phone and other equipment that communicates with mobile phone network use GSM modems. They use SIM card to connect to the network and identify their device.



In Global System for Mobile Communication (GSM) is also most extensively used mobile communication standard in the world. The most frequency used mobile phone standard is GSM, which stand for the global system for mobile communication. Using GSM antenna will improve the signal strength when receiving and transmitting.

SIM

Code division multiple access (CDMA) and global system of mobile communication (GSM) are two types of modern mobile phone (GSM).

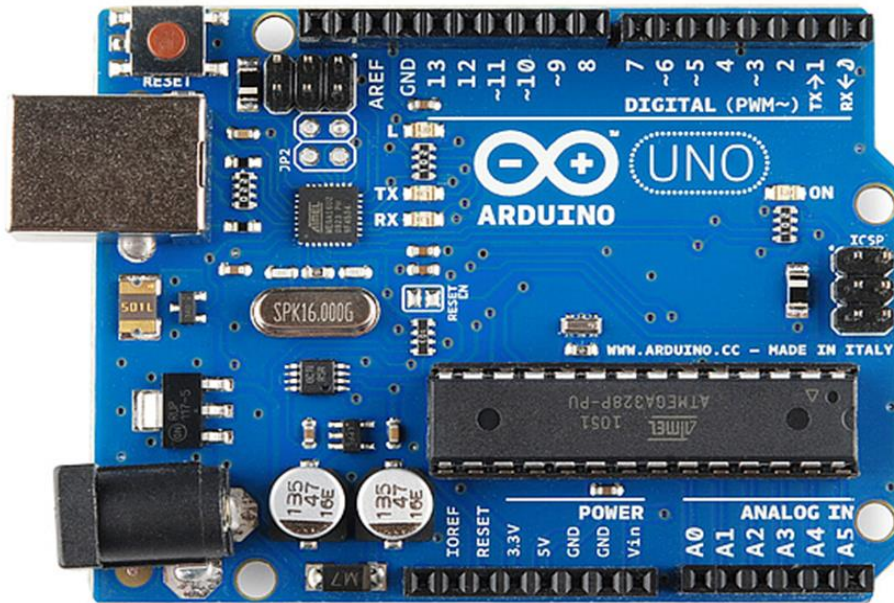
GSM phone on other hand, do require a SIM card, and they are the more popular of the two options.

A SIM card is a little card that is inserted in to the rear of the GSM smartphone. SIM stand for Subscriber Identity Module.

Arduino

Arduino is an open-source platform that's makes it simple to use by using minimal hardware and software. Arduino boards are capable of receiving inputs such as light from sensor, a finger on a button and so on. Or tweet-and turn them into action, such as turning on led or activating an action. Motor, or putting anything on the internet. You may tell the board's what to do by giving it a set of instruction. Arduino is an open-source programing language (based on wring)

This is accomplished using the Arduino software (IDE) based on processing.

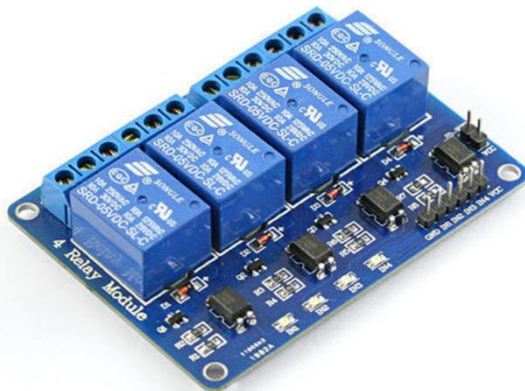


Relay

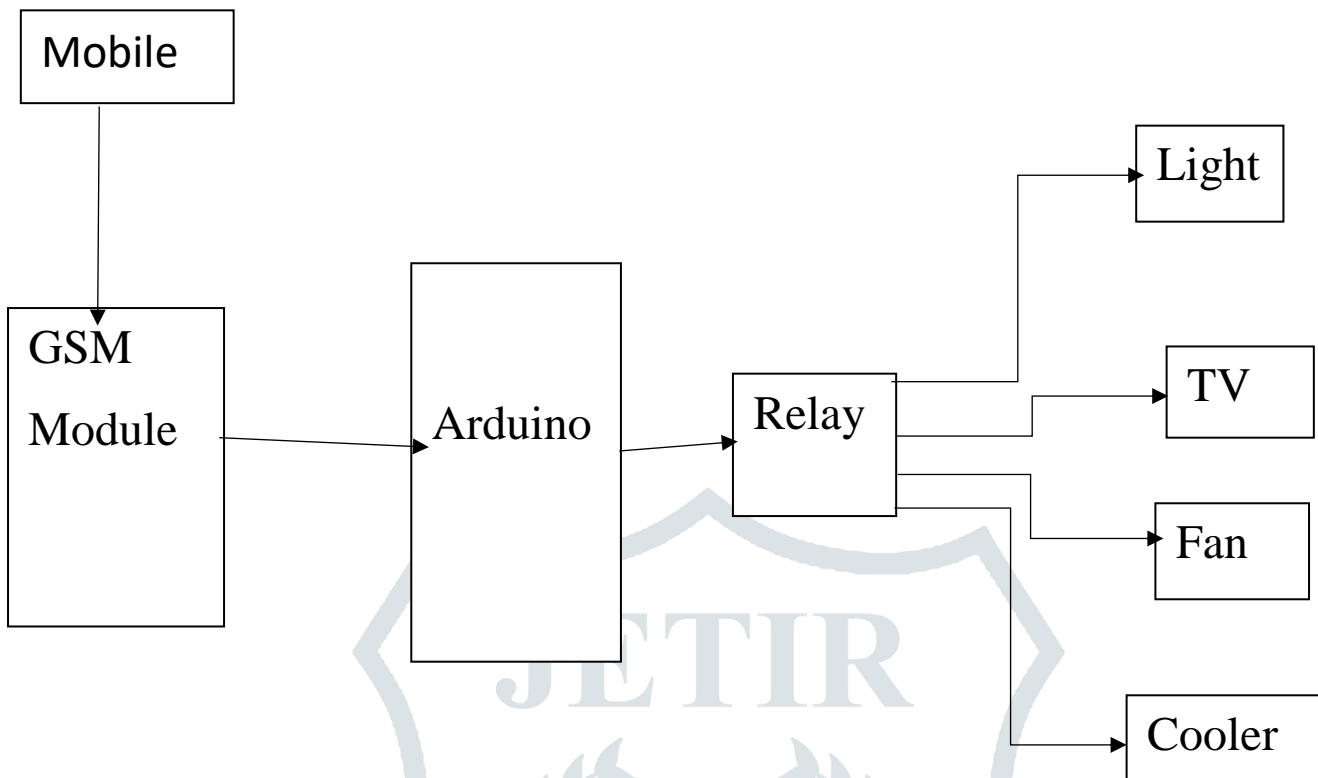
Relay is a switch is activated or deactivated by electricity. The device is made up of a set of input terminal for a single many controls signal, as well as a set of working contact terminals.

Any number of contacts in any contact from, including make contacts can be found the switch. Contact breakages, as well as combinations of two. When a separate low power signals is required to operate a circuit, or when numerous circuits must be controlled by a single signal, relays are used.

There is only one signal Long-distance telegraph networks first used relay as signal repeaters. By sending the signal from one circuit to another, it is refreshed. There were relays. In telephone exchange and early computers, it was commonly used to accomplish logical operations.



Block Diagram



The Arduino is utilized to control the entire procedure in this project. We used GSM wireless connection to operate home appliances in this case. To control AC home equipment, we transmit/send commands like 'Load 1 ON', 'A. Load OFF', and so on. Relay driver turn on turn off home appliances. In this command string, the prefix "A" was used as prefix. The stop at the end of the stream denotes that the message is finished, and this prefix signifies that the main command will come next. When we send an SMS from our home GSM module, the GSM module receives it a forward it to Arduino. Now that Arduino has its SMS, it extracts the primary command from the receive string and say it in a variable. The string is the compare to a previously define string by Arduino. When a match is found Arduino send signal to the relay driver, which turns on or off the home appliances. We utilize three zero-watt bult to represent fan, light and sound as well as television in this behavior. Below the list of SMS massages turn on off the fan and light. Many communications device that employs (GSM) technology in modules.

Conclusion

We can control the connected home appliances remotely using the proposed technology. The aids in the reduction of energy use. The Project's outcome demonstrates that a microcontroller is an extremely powerful instrument for creating smart electronic projects/device such as home Automation System that allow users to operate their device remotely.

Future scope

Prospects of this approach has a number of shortcomings that could be solved. Because utilizing a GSM module and delivering text message costly, an Arduino-to -mobile phone communication interface can be created. That's allow to control appliances like light, fan and TV on or off. Furthermore, an acknowledgement SMS from Arduino to mobile can be delivered, alerting the user whether the appliances are turn on or off. Home Appliances are also control within our control The GSM module contain antenna that allows it to connect to WIFI and we will be able to control home appliances using a mobile application.

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