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# Proposing a New Intelligence Home Management System

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**ABSTRACT**

*Automation systems are very getting popularity nowadays and using various places. This proposed system focused on the need for disabled people and can control home appliances from outdoor and indoor locations. This is the main aim of this project. It can control electrical appliances by using an Android App. Still, it can be designed specific applications depending on the user's needs while reducing the electricity wastage by giving the user the power to control, conserve, and react according to user needs. This proposed system for household appliance control uses cell phones through global mobile communication (GSM) technology and wi-fi technology. The SMS (short message service) technology can be used to control household appliances from long distance. The proposed system uses wireless control; hence, it can be effectively used in systems where unwired connections are desired.*

***Keywords*** *- Home automation, GSM, ARM7, WI-FI, Android mobile,*

## INTRODUCTION

The home automation system is like" One small step for man, one giant step for humankind. "Nowadays, we must use recent technologies and equipment to make our life comfortable. (1) Various definitions of home automation have been presented, and with an advance in technologies, these definitions are improving daily. (2) Home automation is a technology involving automatic control of the home, industries, and commercial buildings. Home automation includes light control, control of various electrical appliances. Nowadays in everywhere, smartphones are available with different features. This smartphone can communicate with any device using GSM technology and WIFI inside the home (3). When we leave our home for some work without realizing that some appliance like a fan, bulbs, and tube light is ON, then by using a smartphone, we can cut off power for that particular device (4). The home automation system will increase the growth of society.

### Block Diagram

All the devices are connected to a common network. Smartphones, ARM7and GSM, are connected to the common network. The GPIO pins of ARM7 (LPC2148) are connected to the relay. Relay switches are used to connect the home appliances.

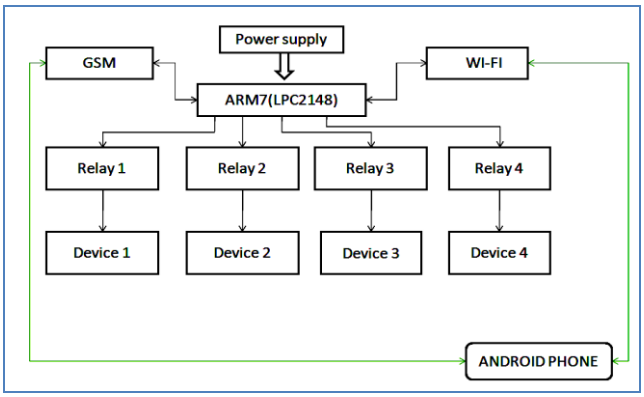


**Fig 1. Block Diagram of the Proposed System**

### Development Methodology

The development part describes the technology used in creating an android phone application. For that purpose, we observed several models and techniques smart homes have several equipments connected in system and operated independently. To get easy access, an android application is developed when controlling required from out of home, and Wi-Fi is used when controlling from home.

### *A. LPC2148 Microcontroller*

LPC2148 Microcontroller board based on a 16 bit /32 bit. It is working in a 3.3v dc supply. This low power consumption Microcontroller has 64 pins with high-speed flash memory ranging from 64 kb to 512 kb. LPC 2148 has 16kb/40kb of on-chip static RAM. Due to a small size and low power consumption LPC 2148are ideal for applications. This Microcontroller is particularly suitable for industrial control and the medical system, and the home automation system. For our proposed system, we ARM7 (LPC 2148) microprocessor developed by RISC machine Ltd.

**Fig2: ARM7 Controller (LPC2148)**

### *B. ANDROID*

In the twenty-first century, Android was discovered by Andy Rubin for mobile phones, and after that, in 2005, Google bought Android, considering Apple iPhone. At that time, several other competitors in the market, such as Nokia, Microsoft Windows Mobile, and Blackberry.

Nowadays, on every mobile phone, there is an android. Android-based number of application is designed as per the requirement. Many devices like mini-computers, tablets, and many portable electronic devices are running on android applications.

Android application is familiar to everyone. That is why it is effortless to operate. Android is a license under the General public license version (GPLv2).


**Fig 3: Android Application**

### *C. GSM (Global System for Mobile Communication)*

The GSM provides a communication medium between user and controller by SMS (short message service). It was receiving a command in the form of a short message. The GSM modem is chosen for transmission of data with control and switching of home appliances. SIM 900 GSM module is used to communicate with the controller through an android application using mobile phones.

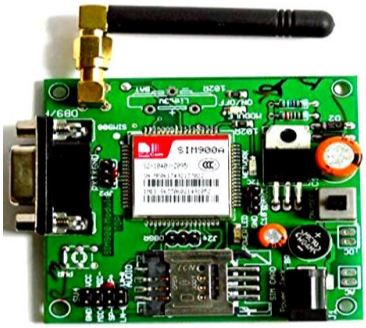

**Fig 4: GSM (SIM9000) Module**

GSM is a wireless network technology that utilizes a SIM (Subscriber Identity Module) card to recognize operators' identities.

### *D. Relay*

A relay is an electromagnetic switch operated by a relatively small electric current that can turn off a much larger electric current. The heart of a relay is an electromagnet


**Fig 5: Relay**

**Power Supply**

The power supply consists of a step-down transformer 230/12V, which steps down the voltage 12V AC. This is converted to DC, which required for the operation of the ARM 7 controller and GSM as well as a relay circuit.


**Fig 6: Power Supply**

**Circuit diagram**

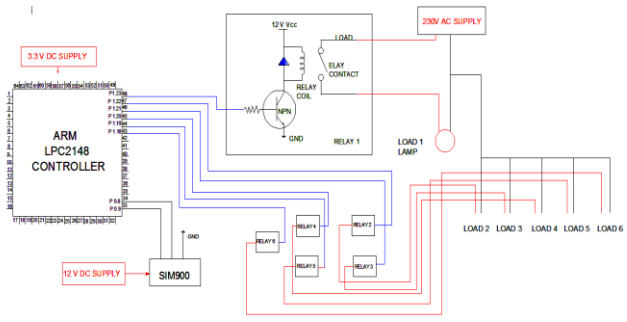


**Fig 2: Circuit Diagram of purposed System**

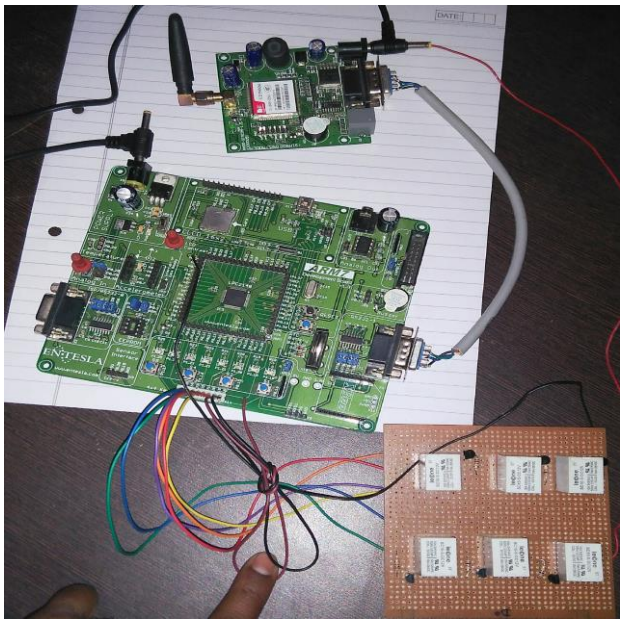

**Fig 7: Actual mounting board**

## Conclusion

Users can easily interact with the android phone. The user can send commands via GSM. The ARM72148 acts as a server, analyses the data, and activates the GPIO (General Purpose Input Output) Pins. The GPIO Pins are connected to the relay switch, which activated the required home appliances.

In this way, the automation process is carried out. This is a simple way. Using this as a reference further, it can be expanded to many other programs

Based on the surveyed study, the comparison of home automation systems is presented. Microcontroller, user interface, a communication interface, and their performance factor are compared. Home Automation system quickly and easily with low cost and high performance, e.g., ARM7, Arduino, other microcontrollers. This review explained that home automation systems, e.g., future home automation, will be smarter and faster. It would be extended to large-scale environments such as colleges, offices, and factories.

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