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# **Automation Overcoming Crippling**

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Abstract: The main purpose of this paper is to improve the automation system at home using the Arduino keyboard with Bluetooth controlled by any Android OS smart phone. Technology and electronics have become commonplace in the last year of technology. In this paper, we present the design and implementation of the Home Automation System in conjunction with Home Housing and the best features of home automation with remote access. In this research project part of the smart home technology, Bluetooth on a smart phone is used, so it is cheap and usable. The app includes four main features: an Arduino keyboard, a Bluetooth signal transmission module, a music speaker and an Android-powered smartphone to control devices. By using the smart phone app, we can control household items and provide security to deter people. The idea of paper is to control household items to avoid the risk of electric shock and ease of use for people with disabilities who have easy access and control of household items by staying in a certain place.

**Keywords:** Energy Conservation, Arduino, Carrying, Physical Challenge, Electrical and Electronic Devices, Home Automation.

#### I. INTRODUCTION

Automation involves introducing computer or automatic control level to certain electrical and electronic systems in a building i.e., lighting, temperature control, etc. These include business process automation (BPA), IT automation, personal applications such as home automation and more. Various smart items such as cell phones, air conditioners, home security devices, theatres, etc., are set to understand the concept of a smart home. Provide them with a Personal Area Network in the home area, where all these devices can be connected and monitored using a single controller.

This paper shows an automated system, which contains a remote control of a mobile phone controller and several client modules, for example: - Office, household items. Client modules communicate with the host controller via a wireless device such as a Bluetooth-enabled phone.

As technology advances, so does housing. Modern homes are increasingly changing from conventional switching to a central control system, including remote control switching. Meanwhile, standard wall switches are available in different parts of the house making it difficult for the user to get close to them to work. And it is even more difficult for older people or people with physical disabilities to do so. The remote remote control provides a state-of-the-art solution for smart phones.

To achieve this, the Bluetooth module is connected to the Arduino board at the end of the receiver while at the end of the machine, the GUI system on the mobile sends ON / OFF commands to the receiver where the luggage is connected. By touching a specific location in the GUI, loads can be turned on / off remotely with this technology. Commercially, the Arduino board using opto-isolators and thyristors using triacs operates the loads.

Although automation is nothing new, the improved home systems that exist today require major and costly infrastructure changes. We have developed an automated system that can control things like television, fan, tube lights from a smart phone using Bluetooth. In this study, we introduced a low-cost secure, automated and secure software. Devices are connected to a circuit to change the base of the microcontroller.

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## **II. LITERATURE SURVEY**

Over the years, home automation systems have become increasingly common in technology. Various automation systems are already using advanced technology. Most of the technology is based on automated home automation systems in the Android app that provides a user interface to monitor and control their home appliances electronically from a local network or the Internet.



# Figure 1: Block Diagram

For the show, we used a DC Fan and a DC Bulb. To drive this DC Fan and Light, a 9V battery is connected. We have used the SD card module to include various songs in this app and any of those songs can be heard via Bluetooth. In this block diagram, the connection is in both directions between Android and Bluetooth mobile module. This communication is done one by one at a time, which is why this communication is called half-duplex.

## **IV. COMPONENTS USED**

# 4.1 Hardware Components

S. No	Component Name	Nos. Required
1	HC-05 Bluetooth module	1
2	ATMEGA8 micro controller IC	1
3	ULN2003 IC	3
4	5V relay	2
5	Crystal 12MHz or 11.0592MHz	1
6	1K Resistor	1
7	22µf or 10µf electrolyte capacitor	2
8	30pf or 22pf ceramic capacitor	2
9	10k resistor network	3
10	7805 IC	2
11	12V battery	2
12	220v to 6v-0-6v step down transformer	1
13	1N4007 diode	3

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#### 4.2 Software Component

- William Greiman builds it on sdfatlib.
- The library supports FAT16 and FAT32 file systems on standard SD and SDHC cards. We must save the audio with a .Wav file and direct Arduino to play audio on a specific digital pin.
- Audio volume can also be adjusted in coding as needed.
- Link: https://docs.google.com/document/d/1NlSseo\_HB5jlSY3Ve4FqTXjWxD4HytGtp5bAkqbRDQ0/edit

V. WORKING



## Figure 2: Circuit Diagram

The connection between the cell phone and the microcontroller board is wireless. Additional devices can be connected to the system with minimal modification. The controller will be a phone based on the Android OS. The changing region will have microcontroller coding to control electronic devices such as fans and lights, etc. Supports wireless communication via Bluetooth. The board has 32 digital input and output ports.

ATMEGA 8 can be programmed using high-quality embedded microcontroller language. The Bluetooth antenna in our module picks up packets sent from mobile phones. Next, these packages contain the status of the device as commands are piped with atmega8 microcontroller and analogue circuitry according to the definition of each product.

A variety of home or office equipment is connected to digital circuit ports by transmission to provide high enough currents and electrical power compatibility. For testing purposes, 25W, 240V lamps were used.

We send instructions from the program (Figure 4) developed on the phone TURN ON/ OFF the device. Response circuit is designed and used to show the actual status of devices after receiving a command (ON / OFF) from a cell phone. When the command has been sent to OPEN the device, the feedback circuit senses the current and provides a discharge signal by opening the corresponding led on the switch switches indicating that the device is ON. Otherwise, the device does not work properly indicating that the command was not executed successfully. We can also work with Home or Office equipment in a Bluetooth standard.

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# **VI.** CONCLUSION

In conclusion, this low-cost program is designed to improve the quality of life at home. Remote control function with a smart phone provides help and assistance especially for the disabled and the elderly. To provide safety protection to the user, small power switch switches replace the current power switch. In addition, the implementation of a wireless Bluetooth connection to the control board allows the system to install in a very simple way. The control board is mounted directly next to the power switch where the switch connection is controlled by transmission.

In addition, flexible connection types are designed as backup to the system. Connected GUIs synced to the control board. They show a real time change situation. The system is designed for easy use. The easy-to-use interface for Windows and Android GUI provides easy control for the elderly and disabled.

For future work, the Window GUI will be used for voice recognition. The Android GUI will be installed as a Bluetooth remote microphone to the Window GUI. All voice signal inputs to the smart phone will be transferred to the Window GUI for signal processing. Also, the push buttons used on low-power switches will be replaced with capacitive sensing switches.



Figure 3: Final implementation of System

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Figure 4: Application interface		

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References

- [1]. Alheraish, "Design and Implementation of Home Automation System", 2004, IEEE Transactions Consumer Electronics, Vol. 50(4), pp. 1087-1092.
- [2]. M.Van DerWerff, X. Guiand W.L. Xu, "A Mobile based Home Automation System, Applications and Systems", 2005, 2nd International Conference on Mobile Technology, Guangzhou, pp.5.
- [3]. "Controlling Home Appliance Remotely through Voice Command", 2012, International Journal of Computer Applications, Vol. 48(17), pp.1 5
- [4]. Mahesh.N.Jivani, "GSM Based Home Automation System Using App-Inventor for Android Mobile Phone", 2014, International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering, Vol. 3(9), pp. 12121-12128. Faisal Baig, SairaBaig, Muhammad Fahad Khan,
- [5]. R. John Robles and Tai-hoon Kim; "Applications, Systems and methods in Smart Home technology: A review," International Journal of Advanced Science and Technology. 15: 37-48-2010.
- [6]. R. John Robles and Tai-hoon Kim, "Applications, Systems and Methods in Smart Home Technology: A Review," International Journal of Advanced Science and Technology. 15: 37-48-2010
- [7]. Code Module built by William Greiman