iJRASET
International Journal For Research in Applied Science and Engineering Technology

# INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

**Volume:** 9 **Issue:** VI **Month of publication:** June 2021

**DOI:** https://doi.org/10.22214/ijraset.2021.35318

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
*ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429*
*Volume 9 Issue VI Jun 2021- Available at www.ijraset.com*

# Door Automation System based on Speech Command Pin using Android Smartphone

Andrew Kevin Jones. J[1], M. Krishnamoorthy[2], Kamalnath. V[3], Kamesh Raja. P[4]
[1, 3, 4]*UG Scholar, Department of Computer Science & Engineering, Panimalar Engineering College, Chennai, India.*
[2]*Assistant Professor, Department of Computer Science & Engineering Panimalar Engineering College, Chennai, India.*

***Abstract:*** ***The growth of technology make smartphone can control the home appliances. An automated device can work more flexible and efficient, including the use in unlocking door. For busy family or busy people, it is not easy to get out of the seat only to reach the door for unlocking people that already have known and made appointment before. The design of proposed method is based on Android smartphone application, Bluetooth module and Android smartphone application is used for serial communication to the Bluetooth module which is connected in controller to unlock the door. Besides it has low cost, Bluetooth based wireless home automation system can be easily implemented in the home. The suggested system is tested and it gives the expected system with more feature as authentication, either with speech command or with pin. Speech command enacted to the system is also tested the Bluetooth connectivity.***
***Keywords: Smartphone, Door, Bluetooth module, Automation***

## I. INTRODUCTION

Today's homes require sophistication control in its different gadgets which are basically electronic appliances. This has revolutionized the area of home automation with respect to an increased level of affordability and simplicity through the integration of home appliances with smart phone and tablet connectivity. Android, by Google Inc. provides the platform for the development of the mobile applications for the Android devices. Home automation system is a mobile application developed using Android targeting its vast market which will be beneficial for the masses. Analyzing the current smart phone market, novice mobile users are opting for Android based phones. Home Automation System (HAS) has been designed for mobile phones having Android platform to automate an 8 bit Bluetooth interfaced microcontroller which controls a number of home appliances like lights, fans, bulbs and many more using on/off relay. This project presents the automated approach of controlling the devices in a household that could ease the tasks of using the traditional method of the switch.

### *A. Project Scope*

This system is capable of monitoring all types of natural languages to identify the base, it tracks, records the speech and executes the given input to get a required output. The potential of using voice recognition module is to recognize or to identify any different languages in the universal of speech voices. Swapping information to knowledge of statistics between the varied parts of the hardware and software executed through a system should be done with a high end secured unit where it should not be hacked to get secured information in it.

### *B. Existing System*

Mainly in the present scenario the machinelevellearningisdominatingso, we are using unique speech models to identify the natural language.

### *C. Proposed System*

The proposed system will have following features:

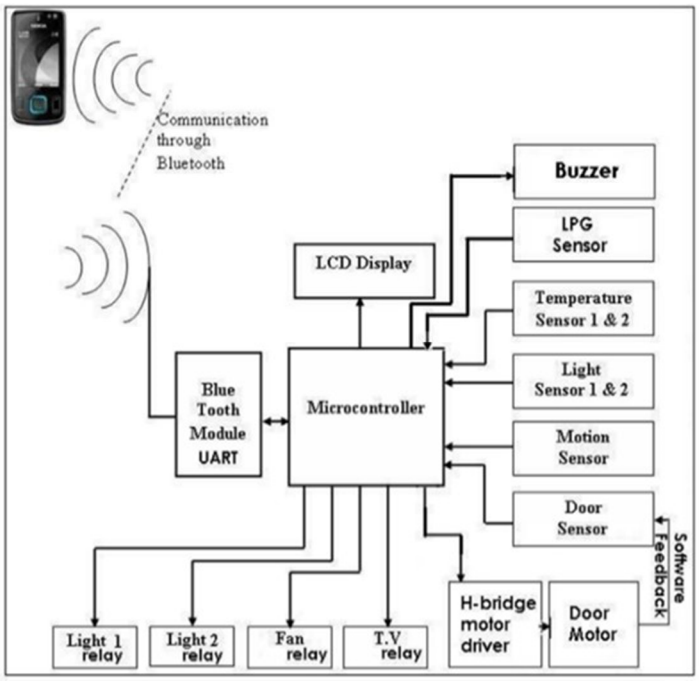
*1)* Arduino
*2)* Devices controlled through android app, alsothrough voicecommands.
*3)* Mobile control.
*4)* Bluetooth.
*5)* LPG-Notification onmobileside- Buzzer goes on.

©IJRASET: All Rights are Reserved

6) Temperature-Notificationonmobile side - One deviceon.
7) Password for androidapp.
8) If any person inside the home, then automaticallydeviceturnonandvice versa.

*D. Architecture Diagram*

Below is the detailed instruction to implement the project. System architecture is the conceptual model that defines the structure, behavior, and more views of a system. An architecture description is a formal description and representation of a system, organized in a way that supports reasoning about the structures and behaviors of the system.




*E. Technology Stack*

1) Arduinounor3microcontroller
2) BREADBOARD
3) CONNECTING WIRES
4) LED
5) BLUETOOTH MODULE
6) LPG SENSOR
7) RELAY

## II. IMPLEMENTAION OF SPEECH COMMAND ALGORITHM

1) Initialize the password of speech command
2) Call speech to text google library 3.Send the text from spoken word via Bluetooth
3) Receive the text data in the Arduino microcontroller
4) Check the protocol, if the first input character is #, the data is true for the system
5) If not, donothing
6) If true continue check, the next flag must be 0 to indicate the use of speech commandauthentication
7) Then continue check, if the next flag serial setting is 1, it is the command to set new command password, then updatethe receiveddetectedtextin the next serial data as saved password in the EEPROM
8) Ifthenextflagserialsettingis0,itisthe command protocol to open the door.
9) Do the authentication, If the command password received are exactly the same with the saved password, the relay will turn HIGH to control the solenoid to open the door
10) If not, shows the warning in the android application

©IJRASET: All Rights are Reserved

*A. Implementaion Of Pin Authentication Algorthim*

1) Initialize 4 digits pin code in the Android Application
2) Send the pin data via Bluetooth 3.Receive the pin data in the Arduino microcontroller
3) Check the protocol, if the first input character is #, the data is true for the system
4) If not, do nothing
5) If true continue check, the next flag must be 1 to indicate the use of pin authentication
6) Then continue check, if the next flag serial setting is 1, it is the command to set/update the pin code, then update the received 4 digits pin code in the next serial data as a saved pin in the EEPRO
7) If the next flag serial setting is 0, it is the command protocol to open the door
8) Do the authentication, If the 4 received digit pin are exactly same with the 4 digits pin saved, the relay turn HIGH to control the solenoid to open the door
9) If not, shows the warning in the android application

## III. MODULES AND DESCRIPTION TWO MODULES ARE USED

*A. Hardware Modules*

1) *Arduino:* Arduino can be used to develop interactive objects, taking inputs from a variety of switches or sensors, and controlling a variety of lights, motors, and other physical outputs

2) *Relay:* A relay switch can be divided into two parts: input and output. Relays are used where it is necessary to control a circuit by a low-power signal.

3) *LPG Sensor:* It can be used with single power supplies, or with plus and minus supplies. When IC senses the temperature, it gives linear voltage connected to the A/D Converter

4) *Bluetooth Module:* It integrates all features required for a Bluetooth Smart application. It is powered directly from a standard 3V coin cell battery or a pair of AAA batteries.

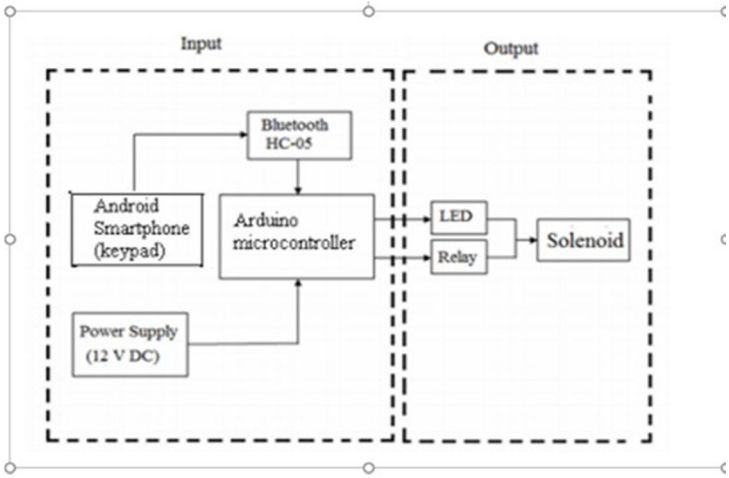
©IJRASET: All Rights are Reserved

*B. Software Modules*

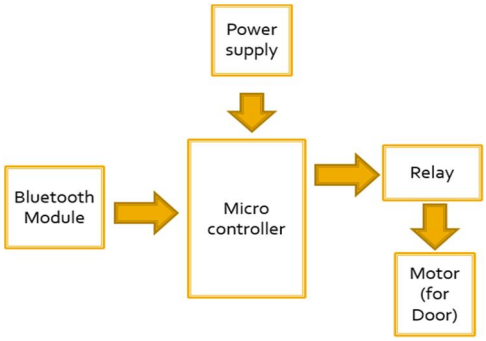
*1) Basic 4 android:* Used for coding of the android application.

*2) Arduino.cc:* Used for coding of the Arduino microprocessor. The developed code is then burnt to the chip using a USB cable.

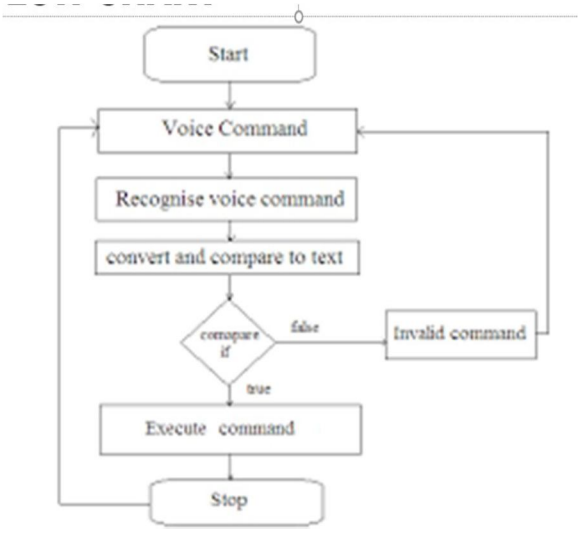
## IV. CIRCUIT DIAGRAM




*A. Block Diagram*




*B. Flow Chart*




©IJRASET: All Rights are Reserved

### C. Speech Command Diagram

## V. CONCLUSION & FUTURE WORKS

### A. Conclusion

In this paper, we have shown the design and features of a Smart Home Automation System. It is Bluetooth based, hence wireless and can be flexible in terms of cost. It has a special feature for smart speech sense, which would decode user's sentences into appropriate commands. It requires authentication details as a medium of security, thus preventing the use of application by unauthorized users. The system also connects with sensors, thus helping In future, the system could use more concepts of Artificial Intelligence so as make it more user friendly and increase the automation. Another function that may be added is developing the system for different regional languages

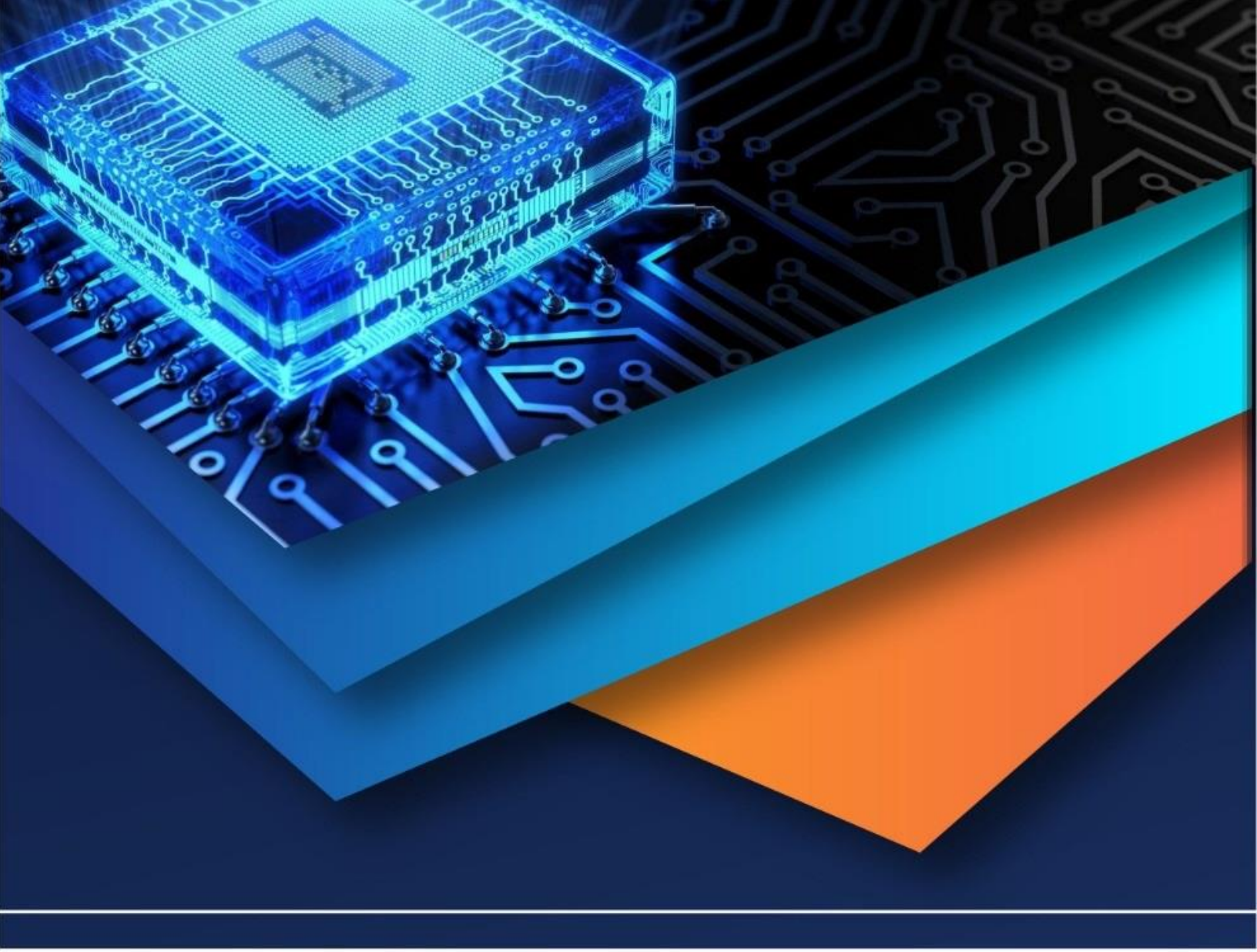
### B. Future Work

It requires authentication details as a medium of security, thus preventing the use of application by unauthorized users. The system also connects with sensors, thus helping In future, the system could use more concepts of Artificial Intelligence so as make it more user friendly and increase the automation. Another function that may be added is developing the system for different regional languages.

## REFERENCES

[1] A.R.Al-Ali and M.Al-Rousan, "Java- based home automation system", IEEE Transactions on Consumer Electronics, vol. 50, no. 2, pp. 498-504, 2004.
[2] Thinagaran Perumal, Md Nasir Sulaiman, Khaironi Yatim Sharif, Abd Rahman Ramli, Chui Yew Leong, "Development of an Embedded Smart Home Management Scheme", International Journal of Smart Home, Vol. 7, No. 2, March, 2013.
[3] Toschi, G. M., Campos, L. B., and Cugnasca, C. E. (2016). Home Automation Networks: A Survey. Computer Standards & Interfaces, 1-41. DOI: 10.1016/j.csi.2016.08.008.
[4] Ankita Darbeshwar, Arti Awate, Sneha Sahare, KetkiGomase, Ankita Bagade, Professor, Computer Science and Engineering, Dr. Babasaheb Ambedkar College of Engineering & Research Nagpur, Maharashtra, India.
[5] Sneha Sahare, Ankita Bagade, KetkiGomase, Ankita Darbeshwar, Arti Awate (Assistant Professor) -Computer Science and Engineering, Dr. Babasaheb Ambedkar College of Engineering and Research, Nagpur, Maharashtra, India.
[6] M. Cho, and J. Kang, —Voice Security on the Rise: Examining the Path to Secure Voice Automation, Alticast Inc. Colorado, 2017.Vbnmfgjndnc
[7] Lia Kamelia, Alfin Noorhassan S.R, Mada Sanjaya and W.S., Edi MulyanaSunanGunungDjati StateIslamic University of Bandung, Indonesia.

©IJRASET: All Rights are Reserved



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

# INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)