

e-Notice Board with improved Security

B. V. Ramana¹, B. R. Sarath Kumar^{2*}

¹Dept of IT, Aditya Institute of Technology and Management, Tekkali, AP, India.

^{2*}Dept of CSE, Lenora College of Engineering, Rampachodavaram, A.P, India.

*Corresponding Author: iamsarathphd@gmail.com

ABSTRACT

Notice boards are widely used to convey messages ranging from small schools to large organizations. This process of conveying messages to the people may lead to wastage of large number of papers in organizations. This will lead to deforestation which causes Global Warming. This study is a small innovative step to enhance this problem by using recent technology. IoT will give solution to this problem by designing a component that which displays the message given by the user. The message that which given by the user will be displayed in the screen. Only an authorized user can access this device to send the voice commands. This remote electronic presentation is utilized to show the information given by the client. The authorized user can speak and the verbalized voice is sent through a Bluetooth and will be displayed on the LCD screen. An android application will be connected with the Bluetooth to receive the voice. A low cost programmed controller named Arduino UNO is used at the receiver to receive and display the messages or information in the LCD display.

Keywords: Internet of Things, Notice board, Arduino, E- Communication, Bluetooth, Security, Voice, Display

1. INTRODUCTION

When received voice is from the authorized person, then the device will be responded or else it won't. This whole process will be done through a transmitter and a receiver section. A Bluetooth module is used to receive the voice/message from the user [1]. Then the microcontroller will receive the information from the Bluetooth module and helps to transmit the information to display it on the screen [2]. This Bluetooth module is connected to an Android Application. User needs to install this application. The Internet of Things (IoT) are widely used in homes, cities and office buildings as well as industries like retail and health care, it shows that connected devices are changing how people interact with virtually everything around them. This study manages a voice worked electronic notification board utilizing a display. This notice board is used to display the information in an effective manner to the people. Through this the user can send and update the messages instantly. Bluetooth is one of the widely used technologies that handle wireless part of the communication channel to receive and transmit the data wirelessly between the devices [3]. Now-a-days the usage of mobiles is rapidly increasing and the usage of landlines has been drastically decreasing [4]. Mobile phones and the technologies related to it are becoming more and more dominant. The application that which have been installed in the mobile will be paired with the Bluetooth module. This application will receive the voice given by the user and transmits this verbalized voice through the Bluetooth module to the Arduino microcontroller [5]. HC-05 is a Bluetooth module used for receiving the voice. Arduino is the microcontroller used to transmit the voice and helps to display it on the screen. This study has many applications in future in educational institutions and organizations, traffic management, railways, crime prevention etc. been user friendly [6]. Long range and faster in conveying of information are the major advantages for this application. By using this system, we can make awareness of the emergency situations by enhancing security [7].

2. MICROCONTROLLER

It can be powered by the USB cable or by an external 9-volt battery. It is connected with a LCD display module, HC-05 Bluetooth module and a 4x4 keypad. When a user sends a message, it is received by a SIM inserted in GSM modem at the receiver unit. The GSM modem interfaced with level shifter IC to Microcontroller. The message received by the GSM is sent to the microcontroller that further displays it on an electronic notice board. The key board used to provide the password to the system.

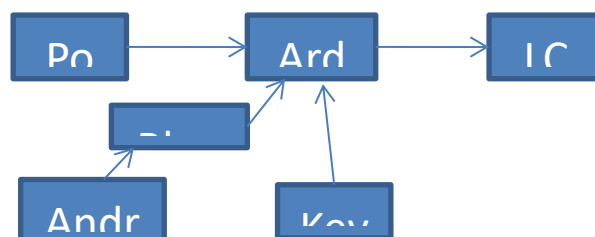


Fig. 1 Block diagram of e-notice board using voice command

2.1. HARDWARE SPECIFICATION

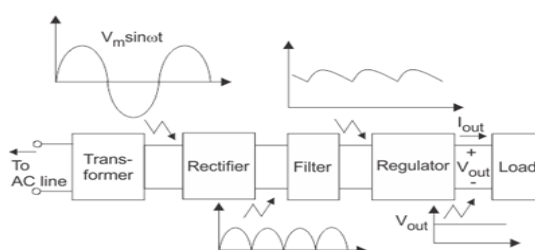


Fig. 2 Components of typical linear power supply

A Transformer is most commonly used to increase or decrease voltage levels between circuits. A bridge rectifier coupled with a step-down transformer is used for our design. The voltage rating of transformer used is 0-12V and the current rating is 500mA. At the point when air conditioning voltage of 230V is applied to the essential winding a 12V of air conditioning voltage is gotten. To make the highest point of transformer to be certain and the base negative one modification of info is required. The following modification will incidentally cause the converse. A rectifier is an electrical contraption that changes over trading stream, which discontinuously pivots course, to organize stream (DC), which streams in only a solitary heading. In this study, the Arduino UNO is connected to the Bluetooth device and a display is also connected to it. The voice/speech that which has been received by the Bluetooth will be sent to the Arduino and this helps to display the message on the screen. A cushion what contains every numerical worth is called as a "Numerical pad". we are using a 4*4 matrix keypad as an input. This means 4 buttons in each column and rows. We cannot press two keys at the same time. There should be a time difference between to press the key with one other. We can set password to make unauthorized users to not to use our device.

2.2. COMMUNICATION - MOBILE PHONE AND ARDUINO MICRO CONTROLLER

This system is an implementation of the idea of wireless communication between a mobile phone and Arduino micro controller. We are designing this system which consists of an LCD display that which is connected to a micro controller called Arduino UNO. At first, we need to set a secret word utilizing the keypad. On the off chance that the secret key matches with the present secret phrase, we can continue or probably the gadget will be bolted. We need to re-enter the secret word. A Bluetooth

module is used to receive and transmit the data from the user to the Arduino. This Bluetooth module is connected to the Arduino controller. As we know that, a Bluetooth is an open wireless protocol for exchanging of the data. This will range up to 100m distance. An android application named as "Arduino voice control" is to be installed from the Google play store into our mobile. Then, we have to connect our mobile device with the Bluetooth module. Through this application, the speech/voice given by the user will be received by the Bluetooth module and that will be sent to the Arduino micro controller. After receiving the data, it will make the display unit to display the data that which given by the user. After the usage of the system, we can simply press a key in the keypad that which instructed to lock the device. All the instructions of the keys will be given through the code.

3. PROPOSED e-NOTICE BOARD

E- Notice board that which takes the voice command from the user and helps to print it on a display by using an Arduino Micro controller. This Arduino UNO is connected with a HC-05 Bluetooth module. To receive the voice/speech given by the user, the Bluetooth should be paired with a mobile which was already installed by an application named "Arduino Voice Control". This application receives the information and sends it to the HC-05 Bluetooth module. There is a special feature in this system, which is Security system. An Authorized person can only use this device. It can unlock this device by pressing a passkey/password through the keypad. This system can be implemented in railway stations in case of any cancelation of trains, in restaurants for displaying the menu, schools, colleges, industries etc. The main objective of this proposed system is that, we can implement this type of e- notice boards everywhere according to our requirement. The voice operated electronic notice board using display is to show messages and to control them by using our own voice. While the user sends the message from the Android application device, it is received and retrieved by the Bluetooth device at the display unit. It is observed that many organizations usually use the traditional paper notice board, where a lot of papers get used and also it requires a computer system and one operator to prepare a notice which is a time consuming and expensive process. As compared to that, our study proposed an eco friendly voice operated and secure electronic notice board.

4. CONCLUSION

This study explains how we can design an ecofriendly voice-controlled notice board which helps to save the nature by minimizing the uses of paper. We come across situations where we need urgently to display notices on a screen. For areas like railway stations and other such busy facilities the station master/announcer need not have to type in every announcement message manually on the screen. So here an innovative android-based notice display system that allows the user to display notices without typing them in manually. Here the announcer may speak out the message through android phone; the message is then transferred wirelessly and displayed on the screen. This device is secured by a security system. Only an authorized person/user can able to use this device. This can be done by simply unlocking the device with a password that has been set previously. The main objective of this study is to make the communication easier and handy with an eco friendly and secure manner.

REFERENCES

1. Gurav, R.K. and Jagtap, M.R., 2015. Wireless digital notice board using GSM technology. *International Research Journal of Engineering and Technology (IRJET)*, 2(09).
2. Sunitha, D., Patil, V.C., Hn, M. and Jebakani, S., 2018, March. Digital notice board using Smart Phones-Speech Recognition Voice command. In 2018 International Conference on Current Trends towards Converging Technologies (ICCTCT) (pp. 1-4). IEEE.

3. Kumar, P., Bhrdwaj, V., Pal, K., Rathor, N.S. and Mishra, A., 2012. GSM based e-Notice Board: wireless communication. *International Journal of Soft Computing and Engineering*, 2(3), pp.601-605.
4. Kamdar, F., Malhotra, A. and Mahadik, P., 2013. Display message on notice board using GSM. *Advance in Electronic and Electric Engineering*, 3(7), pp.827-832.
5. Choudhary, K., Devi, S., Mirani, S. and Singh, V.K., 2018. Wi-Fi Based Smart Notice Board using Raspberry pi. *Research and Applications of Web Development and Design*, 1(3), pp.12-17.
6. Satyarth, J.S., Patankar, A., Mourya, M. and Bhattad, J.M., Voice Operated Smart Notice Board Display Using Android.
7. Dandekar, M.S., Dhakare, V., Sonar, P.S., Ansari, S. and Patil, M.N., Android Phone Speech Recognition Notice Display.
8. Devi, S., Choudhary, K., Singh, V.K. and Mirani, S., VOICE ASSISTED SMART NOTICE BOARD.
9. Pandya, B., Mehta, M., Jain, N. and Kadam, S., 2016. Android based home automation system using Bluetooth & voice command. *International Research Journal of Engineering and Technology (IRJET)*, 3(04), pp.1337-1342.
10. Singh, S., Agarwal, S.Y.R. and Bansal, S., ANDROID PHONE SPEECH RECOGNITION SENSED VOICE OPERATED NOTICE BOARD DISPLAY: AReview.
11. Kannan, K. and Selvakumar, D.J., 2015. Arduino based voice controlled robot. *International Research Journal of Engineering and Technology (IRJET)*, 2(01), pp.49-55.
12. Lodhi, D.K., Vats, P., Varun, A., Solanki, P., Gupta, R., Pandey, M.K. and Butola, R., 2016. Smart electronic wheelchair using arduino and bluetooth module. *International Journal of Computer Science and Mobile Computing*, 5(5), pp.433-438.
13. Hasan, N.F., Rejab, M.R.M. and Sapar, N.H., 2015. Implementation of speech recognition home control system using Arduino. *ARPN Journal of Engineering and Applied Sciences*, 10 (23), pp.17492-17498.
14. bt Aripin, N. and Othman, M.B., 2014, August. Voice control of home appliances using Android. In 2014 Electrical Power, Electronics, Communicatons, Control and Informatics Seminar (EECCIS) (pp. 142-146). IEEE.
15. Basyal, L., Kaushal, S. and Singh, G., 2018. Voice Recognition Robot with Real Time Surveillance and Automation. *International Journal of Creative Research Thoughts*, 6(1), pp.2320-2882.
16. Chatterraj, S., 2015. Smart Home Automation based on different sensors and Arduino as the master controller. *International Journal of Scientific and Research Publications*, 5(10), pp.1-4.