Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.47750/jptcp.2023.30.11.014

# Wireless electronic notice board using IoT

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**Submitted: 25 March 2023; Accepted: 19 April 2023; Published: 04 May 2023**

## ABSTRACT

A notice board is now considered to be a crucial element for universities, companies, or public places like hospitals, bus stations, and transport hubs. Nevertheless, using paper notes mounted on a noticeboard is a time-consuming and expensive technique that wastes a lot of material, manpower, and time. The message or information is used to effectively show the public data, although it could be hard to modify the notifications quickly. We have created and set up an advanced "Wireless Notice Board" in this paper. The system can be enhanced by employing an Android app on Wi-Fi connected smartphones and tablets to deliver the most current information to a reasonably priced programmed microcontroller.

**Keywords:** *Arduino, Internet of Things( IoT), Liquid Crystal Display(LCD), Wi-Fi, temperature, humidity*

## INTRODUCTION

Our daily lives are being significantly impacted by technology. It facilitates communication with other people. Sharing data or information is therefore seen as the main goal. Ultimately, methods for successful communication are developed. As a result, it makes way for the Internet of Things(IoT), which makes it easier and more comfortable for objects to communicate with one another. The majority of IoT devices rely on a wireless connection with additional gadgets. IoT is a network that enables the interchange of data or information amongst all physical things by connecting them to the internet via network equipment or routers. IoT enables remote control of devices using the current network infrastructure. Moreover, the Internet of Things also offers a self-reliant manipulation feature that any gadget may use to operate independently of human interaction.

As a result, we employ an IoT application to display messages on an electronic notice board. As we require a real-time notification and the notice board is frequently utilized nowadays in demanding settings like universities and share marketing, this announcement should be in real-time. This project is an experiment I'm conducting to bring in the world of real-time noticing utilizing IoT technologies and the internet. This project includes sending messages to a remote server using apps created with Android Studio and installed on mobile devices. The Atmega328p Microcontroller retrieves this message, and the LCD screen displays it.

## LITERATURE SURVEY

With the IoT, create and construct a small notice board. The message that will be shown on the notice board is sent via a message. This employs a GSM device that places a restriction on how far away the message may be delivered [1].

A Raspberry Pi is the core component of a digital notice board, and an android program connected to the LCD runs on it. This project requires a reliable, registered network- based internet connection at all times[2].

Smart Notice Board by Android that uses the Raspberry Pi and IoT ,according to a study on the topic ,IoT has been implemented .An Android Operated Smart Notice Board that uses IoT that employs the Raspberry Pi and IoT has been created, according to a survey study on the topic. The disadvantage of this project is that it uses a unique app that must be created again for it , and it also needs an ongoing online connection . With a Raspberry Pi being linked to the internet on the receiving end and a PC being used to deliver information. One of these is the requirement for constant internet access[3].

IoT and Raspberry Pi are utilized to implement a digital notice board where information is sent via a PC and received with a Raspberry Pi that is linked to the internet . One of the systems shortcomings is the requirement for a constant internet connection[4].

An analysis of Voice over Wi-Fi based Smart Wireless Notice Boards .This technology uses Wi-Fi to wirelessly relay urgent information . This system transfers information via Raspberry Pi[5].

Electric notice board powered by Zigbee . In this project, Zigbee and GSM technology are used to create the wireless noticeboard. The computers software helps the user send notifications to users via email and mobile devices, as well as display notifications displayed on the board. This systems disadvantage is that it requires constant internet access in order to upload the data that will be presented in the emails[6].

A mechanism for disseminating information on an electronic information desk. This automated system makes use of an embedded server and GSM technologies. When a student or an employee requires information, they may send an SMS to the system, which will then respond with theinformation they need. The system is made to operate independently without the assistance of a human operator. The technology also has the ability to remotely update it with new data and may notify students or staff through SMS of any immediate update. Besides this, the system, which is intended to operate approximately, may save previously issued notifications. The system weakness is the use pulse- transmission technology in GSM, which may be susceptible to electrical interference and has a slow rate of information or data transfer [7].

### *A Summary Of History*

Wireless technology which is mobile telecommunication came into existence with the establishment of the first- generation technology introduced in the 1980s. It employed a single universal network standard commonly referred to as Advanced Mobile Phone Systems. However, 1G uses analog signals rather than digital signals this is an inefficacious means of transmitting information, it’s slower and the signals cannot reach as far in terms of cloistered areas, the analog signals are more likely to suffer interference problems, it was finally reinstated by 2G digital telecommunications. 2G (second generation) advanced on the Global System for Mobile communications, provided significant mobile talk advancements, and established encrypted calls. Radio signals in 2G are digital were also known commonly as personal communication services(PCM), SMS text messaging was the first kind of mobile data service launched by second generations, although 2G deployed circuit- switched data routers that limited customers to one circuit- switched communication line. This expedited the third-generation cellular communication rose with the amalgamation of different technologies some of them are popularly termed FLMTS (Future Public Land Mobile Telecommunications), termed FLMTS (Future Public Land Mobile Telecommunications), and UMTS(Universal Mobile Telecommunications System)but due to the power consumption is high and 3G offers a maximum download rate we switched 3G to 4G fourth generations cellular technology and here

came 5G with low latency and millimeter wave spectrum than 4G.

The most recent technologies are listed here.

Automated Notice Board.

Notice Board powered by Bluetooth.

Notice Board powered by GPRS.

GSM(Global System for Mobile Communication) based SMS(Short Message Service) notice board.

***Drawbacks of The Existing System***

Manual noticing Needs to display messages on the board with the help of human sources. It is time- consuming and rigorous when it comes to displaying notices .

Since RF modules may be applied for communication at shorter distances, certain notice boards have a constrained communication range. The Bluetooth-based notice board has a drawback as the range of Bluetooth is 10-15 meters. For an Internet service, a GPRS-based notice board needed network coverage.

Mobile message plans are required in the scenario of an SMS (GSM)-based notice board.

Moreover, a total of 160 characters can be transmitted at once. The specified max range of the GSM is just 35 kilometers, so it's quite confined.

***Proposed System***

Considering the difficulties, we have been facing these years due to Zigbee and GSM technologies. We have come up with the idea of an “Electronic notice board with an IoT (Wi-Fi) module”. As mentioned in the below “Fig. 1” the primary objective of the proposed system is to establish an electronic notice board that displays messages delivered by the user via a mobile phone, as well as to design a simplistic, user friendly mechanism which can accept and exhibit messages and data in a specialized manner that makes it easier for the user to keep a record of the notice board throughout the day and each time the user uses the system. To achieve the desired, we develop an IoT application to make the system user friendly. With this IoT application the message may be viewed immediately on the LCD(16*2) by the sender. The transmitter, as well as the receiver, are the two components that make up the system. Senders are accountable for sending crucial information. The systems transmitter and receiver are the mobile and LCD respectively. It enables the user to create a unique application and upload them in the app store. We compose android apps in Java programming language that uses an Android studio. The sender must enter the corresponding password in the app that was developed using Android studio to access the digital notice board. As a result, an android application is created employing Java programming and Android Studio. The user can input a message and obtain permission for information transfer after they enter a valid password. The microprocessor in the receiver portion is linked to an ESP8266 Wi-Fi module, which enables LCD display of the message. Both the temperature and humidity readings are displayed using a DHT11 sensor, therefore the message is displayed alongside the readings with a buzzer sound.

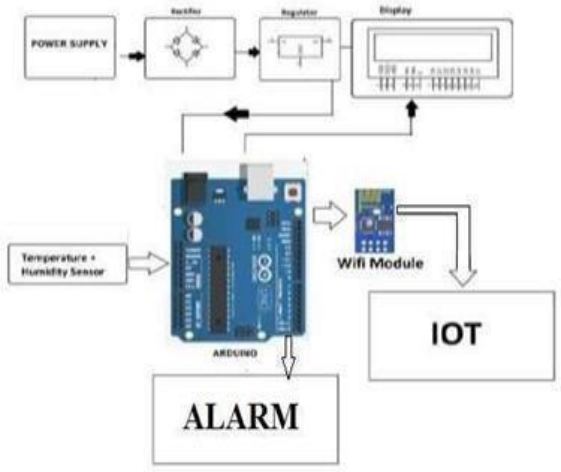


**FIG 1:** Proposed system Block Diagram

## METHODOLOGY

As shown in “Fig. 2”. The power supply is switched ON in the kit as the AC voltage is passed on, and the step- down transformer, which is essentially incorporated into the kit, functions as the passive device that gets and emits lower output voltage, it converts 12volt to 5volt thereby

reducing the power and maintaining constant output voltage. The voltage is passed on to the filter, which is a circuit that smoothens the output rectified into pure DC signal, and the signal is sent to Arduino Atmega 328p which is most widely invoked as the heart of Arduino Uno and the mobile is enabled with WIFI ESP8266, a SOC that has been combined with a Protocol layer which allows any microcontroller to connect to a wireless network. Using ATMEGA 328p microcontroller IDE write the code to the wireless notice board. Dump the program into the ATMEGA 328p microcontroller. Thus, the message is scrolled right to left and from left to right along with the "Temperature(C) "and "humidity(C) "in the LCD.

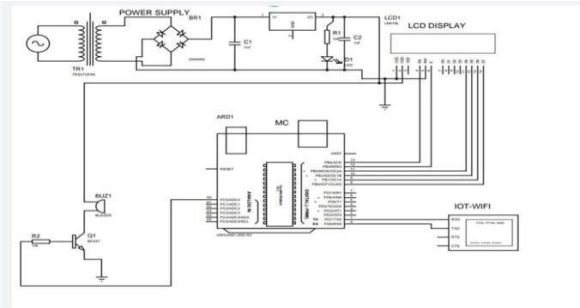


**FIG 2:** Block Diagram

## RESULT AND DISCUSSION

This "IOT Notification" app shown in the below "Fig 3" which is developed with the help of Android studio acts as the sender i.e., it transmits the notification to the LCD. Thus, the message is received with a buzzer sound on the LCD and the temperature is scrolled from right to left and moves from left to right along with the notifications sent from the app as shown in "Fig. 4".


**FIG 3:** Command given to the android app

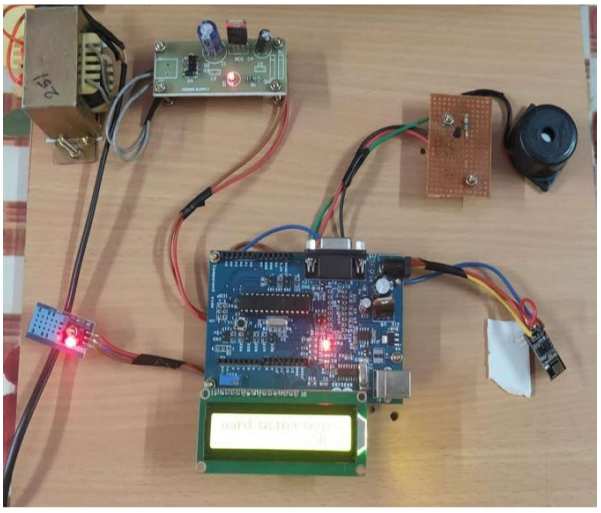

**FIG 4:** Prototype

## CONCLUSION

With the aid of the software, the message may be delivered from any mobile or computer . The Wi-Fi consists of a unique password, and the admin can send the password to who so ever needs to send information on the noticeboard, so this feature is beneficial especially in schools and colleges to display important notifications regarding parties and events.

## ACKNOWLEDGMENT

At this pleasing moment of having successfully complete our project, we wish to convey our sincere thanks and gratitude to our parents and the college management our chairmen Shri C. VALLIAPPA, and our vice chairman CHOCKO VALLIAPPA and Shri. THYAGU VALLIAPPA

who provided all the facilities to us. We would like to express our sincere thanks to our principal, Dr.S.R.R. SENTHIL KUMAR for motivating us to do our project and for offering adequate duration for completing our project. We are also immensely grateful to our Head of the Department Dr.R.S. SABEENIAN, M.E., Ph.D., for his constructive suggestion and encouragement during our project. With deep sense of gratitude, we extend our earnest and sincere thanks to our project guide Prof. M.AMUTHA, M.E., (Ph.D.,) Assistant professor (Sr.Grade) Department of ECE for his kind guidance and encouragement during this project.

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J Popul Ther Clin Pharmacol Vol 30(11):e120–e124; 04 May 2023.