

# **Wireless Electronics Notice Board**

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**Abstract:** *This technical paper deals about development of IOT based electronic notice board using available IP based infrastructure and IOT devices. Smart notice board can be developed to make noticing system much simple and faster and cost effective with web interface the system is platform independent which overcomes the disadvantages of existing Noticing system. Web interface of system gives access to IP based devices to provide input to system. This prototype developed can be used to eliminate the need of huge bill boards thus it is also a better method of green.*

**Keywords:** Internet of Things, Atmega 328, LED Display, Node MCU, RTC Module, LM35

## **I. INTRODUCTION**

Wireless notice boards are one of the widely used ones ranging from primary schools to major organizations to convey message at large. If we want to share some information or emergency always to people in that case notice board is very effective but for that notice a lot of paper is being used and which is later wasted by the organisations. The elderly system conveying important message in the notice board need burden in some number of attempts to transport information. If the school, college, Universities and other institutions are distance separated. This method is defined as the dependable responsibility for myriad staff to deliver the notice system which is determining as conserved to the one centralised heading system. Adhering different notices every day is troublesome procedure. A couple of the pre-existing techniques incorporate the utilisation of IOT system for Mobile communications systems with smaller scale microcontroller for example ATmega328 Utilizes a 16\*2-character LCD which has a perceive ability disservice as the viewers required to the screen so as to Persie the notification data being shown on the screen. All the above suggested and actualized systems have some pivotal disadvantages or are not totally attainable in application with regards to genuine execution. In that case, the implementation of this project can bring enormous change on the environment issues as well as improving by utilising technology. To implement the project Node MCU and an android are just require connected via web server.

## **II. LITERATURE SURVEY**

Several researchers conducted various researches in establishing this project. They serve a different function and employ different technologies, though. Some of these papers, along with descriptions of their technology and applications, are described here.

### **A. Digital Notice Board Using Raspberry pi (February 2016)**

Notice Board is primary thing in any institution or public utility places like bus stations, railway stations, colleges, malls, etc. But sticking various notices day to day is a difficult process. A separate person is required to take care of this notices display. This project is about advanced wireless notice board. The project is built around ARM controller raspberry-pi which is heart of the system. Display is obtained on project tor. A Wi-Fi is using for Data transmission. At any time, we can add or re- move or alter the text according to our requirement. At transmitter authorized PC is used for sending a notice. At receiving end Wi-Fi is connected to raspberry pi. When an authorized user sends a notice from his system, it is received by receiver. Wireless is a popular technology that allows an electronic device to exchange data wirelessly over a computer network, including high speed wireless connections. The data is received from authenticated user. Then it sends to arm 11 that is raspberry pi.[1]

### **B. Smart Electronic Notice Board Using WI-F (March 2016)**

Notice boards are commonly used in variety of institutions which we come across in a daily basis. In the present generation the advertisement notice boards are being managed manually. This process is difficult to involved in order to

put a notice on the notice board. This waste a lot of things like paper printer ink, manpower and also brings the loss of time. In this paper we have proposed a system through wireless transmit notices on a notice board using Wi-fi. Wi-fi can pass information for about 100meter distance Wi-fi data rate has 1 or 2 Mbps. It accesses numerous point and to support network interfaces. It also makes the system compatible with more than one wireless technology. This paper describes the Wi-fi based LCD display.[2]

### **C. Digital Notice Board (April 2017)**

Notice Board is basic concern in any organization or institution and also it is use in many public places including bus stations, railway stations and malls etc. The Traditional way of dis playing notices is sticking print of notices on notice board which is difficult task. This project is mainly about digital notice board with raspberry pie in which there is an android application that is connected with LCD display via Raspberry pie in these systems the main feature is scheduling of notices on the basis of priority and also backup facility and notification facility for the user is also provided.[3]

### **D. Bluetooth Based Wireless Notice Board using Arduino (July 2021)**

Bluetooth based wireless notice board using Arduino will help us in passing any message almost immediately without any delay just by sending a SMS which is better and more reliable than the old traditional way of passing the message on notice board. This proposed technology can be used in colleges, many public places, to enhance the security system and also make awareness of the emergency situations and avoid many dangers. For this purpose, Android based application programs for Bluetooth and Wi-Fi communication between Android based personal digital assistant devices and remote wireless display board are used Using the developed system, two different applications for displaying messages on a remote digital notice board and wireless person calling has been implemented. It also helps in saving the time and the cost for paper and printing hardware.[4]

### **E. Iot Based Digital Notice Board Using Ardino Atmega328 (March 2019)**

LED display system is aimed at the colleges and universities for displaying day-to-day information continuously or at regular intervals during the working hours. Being GSM based system, it offers flexibility to display flash news or announcements faster than the programmable system. The LED display system mainly consists of a receiver and a display board which can be programmed from an Arduino. It receives the message through serial port and display the desired information after necessary code conversion. It can serve as an electronic notice board and display the important notices without any delay thus avoiding the latency. The LED display is easy to expand and it allows the user to add more displays at any time and at any location depending on the requirement.[5]

## **III. PROPOSED SYSTEM**

### **3.1 Problem Identification:**

1. The main objective of our notice board will be that the user should be able to notify the person needed whenever necessary rather than displaying it with paper every time.
2. Digital notice board help to keep everyone updated on upcoming events, opportunities meeting, holidays as well as today plan of lecture.
3. And also share the emergency news with students and teacher without hard work and wasting of time and also if serves purpose of inspiration and motivation.

### **3.2 Objective**

The main objective of our notice board will be that the user should be able to notify the person needed whenever necessary rather than displaying it with paper every time. Our main objective is the replacement of the public notice boards (like the college notice boards) be replaced by this type notice board system in order to save time and paper.To display "Desired Notice" or any other Announcement from department. We interface notice board with android/phone. With the help of mobile phones data is send to the microcontroller.

#### IV. METHODOLOGY

In this project, we use SMPS power supply, which convert 230V INTO 5V. This 5V is given to the Microcontroller. The system is ON and waits for the message to display on the screen. To display the message. First the IOT device paired with the electronic device is paired. The mobile contains the APP and the pairing we have to type the message and it is displayed on the LED display. The message keeps scrolling even after the IOT connectivity is removed. Otherwise Real time and temperature is displayed on display.

##### 4.1. Block Diagram

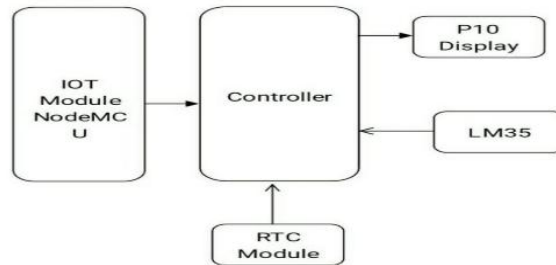


Figure: Block diagram of proposed system

##### 4.2 Description of blocks are as following:

###### A. Hardware Requirement:

**IOT Module:** Here we use IOT Module Node MCU which is WIFI module. NodeMCU is an open source platform based on ESP8266 which can connect objective and let data transfer using the Wi-Fi protocol in addition, by providing some of the most important features. When we connect it with WIFI then it will communicate with Blynk App. Then when we type any content, it will be as it is received on WIFI module then it will serially send to controller using serial communication 9600 boude rate.

**ATmega328:** Arduino board is important in our project ATmega328 is basically an advanced virtual RISC microcontroller. It receives the data from NodeMCU, and gives signal to the P10 LED display. Arduino is an open source platform used for building electronic projects. It supports the data up to 8bits. ATmega328 has 32KB internal built in memory. The device operates between 1.8 to 5.5 volts. The most common implementation this chip is on the popular Arduino development platform namely the Arduino uno and Arduino models

**P10 Display:** This large, bright 512 LED matrix panel has on board controller circuitry designed to make it easy to use straight from your board. Clocks, status displays, graphics readout and all kind of impressive display project are easily to create using this display. To make it really easy to get started we include a breakout board and ribbon cable along with the display module, so you can plug it straight in to an Arduino compatible board and start playing with it right away.

**RTC Module:** Real time clocks (RTC), as the name recommends are clock modules. The DS1307 real time clock (RTC) IC is an 8 pin device using an I2C interface. The DS1307 is a low-power clock/calendar with 56 bytes of battery backup SRAM. The clock/calendar provides seconds, minutes, hours, day, date, month and year qualified data.

**LM35 Sensor:** LM35 is an analog, linear temperature sensor whose output voltage varies linearly with change in temperature. LM35 is three terminal linear temperature sensor from national semiconductor. It can measure temperature from -55 degree Celsius to +150 degree Celsius. The voltage output of the LM35 increases 10mV per degree Celsius rise in temperature. LM35 can be operated from a 5V supply and the stand by current is less than 60uA. We can make use of this in built ADC of fashion to convert the analog output of LM 35 to digital output. Since Arduino uno has a 6 channel inbuilt ADC, there are 6 analog input pins numbered from A0 to A5. Connect analog out of LM35 to any of these analog input pins of Arduino.

#### V. SOFTWARE

Software for programming: Arduino IDE (Integrated Development Environment) The Arduino IDE is an open-source program created by Arduino that is primarily used for authoring, compiling, and uploading code to practically all Arduino

modules. It is official Arduino software that makes code compilation so simple that even a non-technical person may get their feet wet with the learning process.

#### **VI. ADVANTAGES**

1. User friendly: Message are only to be typed on a mobile or computer, which in turn are display wireless on the display unit.
2. Eliminates use of printers: Since we don't use paper to display information, printers are also of no use in this system.
3. Echo friendly: As no paper use it helps in saving trees.
4. Faster means of transforming information: There is no delay in transmission of information message are displayed in a matter of seconds after typing.
5. Easy to Control anywhere.

#### **VII. APPLICATION**

1. Educational institutions and organizations: Currently we rely on putting up papers on notice boards to inform people of event. this method can be discarded by using wireless notice boards to display information in real time.
2. Railway station: Instead of announcing the delay in arrival of trains, we can display the information.
3. Advertisement: In shopping malls, we get to here the offers on various products from time to time. Instead we continuously display the information regarding products and related offers on electronic display notice board.
4. Managing traffic
5. Railway station, any public utility places.

#### **VII. FUTURE SCOPE**

1. Multilingual display can be one of the added variations of the project, the display board are one of the single most important media for information transfer to the maximum number of end users. The features can be added by programming the micro - controller to use different encoding decoding scheme in different areas as per the local message. This will ensure the increase in the number of information area.
2. A commercial should be also to display more than one message at a time currently in our project we are using onboard RAM memory to saved single message. To overcome this short coming we can interface an EEPROM to save message. This not allows more than one message to be displayed at a time but also allows as to retrieve message from the EEPROM even after a power failure.
3. A converter can also be added which will convert written message into speech and it can help the ones which cannot see. The notice would be announced for them which the help of these notice board.

#### **VIII. RESULT**



The use of microcontroller in place of general-purpose computer allows us to theorize on many further improvements on this project prototype. Display during period where in no message buffers are empty is one such theoretical improvement that is very possible. The ideal state of the microcontroller is when the indices or storage space in the memory are empty and no new message is there to display. With the help of IOT technique we can choose to simulate and broadcast important notifications. The display board is one of the single most important media for information transfer to the maximum number of end users. this feature can be added by programming the microcontroller to use different encoding scheme in different areas as per age.

### **IX. CONCLUSION**

Now our World is moving towards digitalization, so if we want to change in the earlier used system we have to use new techniques. Wireless technology provides fast transmission over long range data transmission. So this project Wireless Electronic Notice board has been successfully designed and tested. The toolkit accepts the message stores it, validates it and then display it in the LED screen. there is facility for displaying Two message at a time. The major constraint incorporated is use of security code for start displaying message. IOT System is the collaboration of software & hardware through which most of the complicity reduce, even system size & cost also reduced. The IOT based digital notice board system that we have created has been in practical uses in various companies like in construction companies and research areas, railways colleges. This system can avoid paper work, reduced human effort usage in definite purpose areas. Now a days every advertisement is going to be digital. The big shops and shopping centres are using the digital moving displays now. This project can be used mainly for police or army to display something crucial within a matter of seconds. So keeping in mind we are designing a new display system which we can access remotely, thus utilizing digital technology.

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