

## WIRELESS ELECTRONIC NOTICE BOARD: MODERNIZING COMMUNICATION IN PUBLIC SPACES

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**ABSTRACT:** This academic task explains the process of constructing an Internet of Things (IoT)-integrated electronic bulletin board utilizing the existing IP-based infrastructure and IoT devices. Developing an intelligent notice board could potentially enhance the efficiency, velocity, and cost-effectiveness of the warning system. The existing issues with the system have been resolved through the implementation of a web interface, enabling the system to function on any device. Data transmission is possible between devices that utilize IP addresses and the online interface of the system. This alternative to large billboards is more environmentally sustainable due to its elimination of the need for their use.

**KEYWORDS:** Internet of Things, Atmega328, LED Display, NodeMCU, RTC Module, LM35

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### 1. INTRODUCTION

Any type of business in any country can use a wireless notice board to share information. Bulletin boards waste a lot of paper and aren't very useful if the goal is to regularly let people know about emergencies or important information. It will be hard to send and handle information with the old technology that was used to put important messages on the bulletin board. Think about a situation where there is a big distance between the different schools. This way of doing things lets more than one person receive notifications while keeping everything under one name. It's hard to deal with all the texts that come in every day. The Internet of Things (IoT) and very small microcontrollers, such as the ATmega328, are used in some older choices to allow wireless interactions. One of them is hard to read because it has a 16x2 LCD screen, and people have to stare at it for a long time to figure out what it's saying. Everything else that has been thought of and tried either has big problems or doesn't work at all in real life. On the other hand, this project could make a big difference in protecting the environment and using cutting edge technology. A web server can be used to link a Node MCU to an Android device so that the project can be finished.

### 2. LITERATURE SURVEY

A lot of experts looked into a lot of different topics to start this project. However, they do not work the same way and are not at all the same. We will look at a few of these magazines and talk about their tools and how they can be used in this post.

#### **Digital Notice Board Using Raspberrypi (February 2016)**

Colleges, train and bus stops, and shopping malls are all great spots for message boards. With new texts every day, it can be hard to keep up. There needs to be only one person running this message show at a time. The main goal of this project is to make BBS wireless technology better. At the heart of the project is a powerful ARM CPU called Raspberry Pi. Project Tor is used to get information about the screen. You can send information with Wi-Fi. If we need to, we can add, move, or change words. Personal computers that are allowed to do so send radio messages. The Raspberry Pi is connected to Wi-Fi on the other end. The person who is able to send one lets the other person know when it takes place. People who have been checked out use wireless technology, generally through fast wireless connections, to give information. The signal is then sent to the Raspberry Pi's Arm 11.

### **Smart Electronic Notice Board Using WI-F (March2016)**

A lot of places of business have notice boards. Now

At the time, the generation head noticeboards for ads are controlled by hand, which makes it hard to put up notes there. A lot of things are lost, such as work time, paper, printer toner, and more. This paper talks about a Wi-Fi method for putting up notices on a portable bulletin board. At speeds of 1 or 2 Mbps, Wi-Fi lets you send info up to 100 meters away. It has a lot of different network links, such as point and support types. The LCD screen that can link to Wi-Fi is talked about in this essay. Besides that, it makes a lot of different wifi devices work better with the system.

### **Digital Notice Board(April2017)**

A notice board is an important part of any business or public building. You can find them in bus and train stops, shopping malls, and other places. To get the word out, people used to put paper copies on a notice board, which took a lot of time. These systems' main job is to make it possible to set priorities for note writing. The person can also use a system to get notifications and back up their info. As the main part of the project, Raspberry Pi will be used to make a digital bulletin board. Rasp Pi is used to link an Android app to an LCD screen in this case.

### **Bluetooth Based Wireless Notice Board using Arduino(July2021)**

Since this Arduino-powered, Bluetooth-enabled wireless notice board is being built, we will be able to send any message quickly and consistently via SMS instead of putting notes on notice boards like we used to. Colleges and other public places could use this idea to make them safer, make people more aware of what to do in an emergency, and stop a wide range of threats. This is done with app programs that run on Android. These programs use Bluetooth and Wi-Fi to connect portable Android devices to a distant wireless display board. On a digital bulletin board far away, you can share and receive messages, and you can call people without wires. It saves time and money because it gets rid of the need for writing tools and

### **Iot Based Digital Notice Board Using Arduino At mega 328(March2019)**

The LED display system was created so that colleges and schools could use it. Depending on the plan, it can show daily news at certain times or all the time during class. The LED display system has two main parts: an Arduino-controllable display board and a viewer. Because it's based on GSM, it can show flash news or alerts faster than systems that are made to do that. It gets the message through the USB port, changes the code as needed, and then shows the right information. As an electronic bulletin board, it can cut down on wait times by showing important alerts right away. The expanding LED monitor makes it easy to add more screens based on the user's needs.

## **3.PROPOSED SYSTEM**

### **Problem Identification:**

- The main purpose of our noticeboard is to let users send quick alerts to the right people, so alerts don't have to be handed out on paper all the time.
- There is a digital notice board where everyone can see what events, meetings, holidays, and course schedules are coming up.
- Also, give teachers and students important information without making them work too hard or taking too long, especially if it can improve their lives.

### **Objective**

Instead of relying too much on paper, our notice board's main goal is to help people quickly get in touch with the right person when they need to. Our goal is for departments to be able to post messages like "Desired Notice" on this technology instead of public notice boards like the ones in schools. This will save time and paper. People can use their phones to connect to the message board. Information from the phones is sent to the computer.

## **4.METHODOLOGY**

The computer in this project gets most of its

power from a switched-mode power supply (SMPS) that can switch between 230V and 5V. Make sure the device is turned on and connected to an Internet of Things device before the message appears on the screen. The LED screen will show a message that you type into the message box. The phone has information about the app and how to pair it. The message will keep scrolling even after the IoT link is broken. The screen always shows the time and temperature.

#### 4.1. Block Diagram

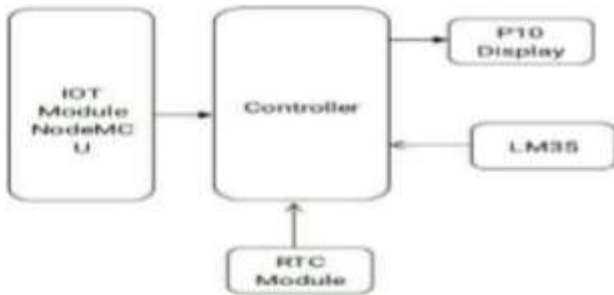


Figure: Block diagram of proposed system

#### Description of blocks areas following:

##### A. Hardware Requirement:

##### **IOT Module:**

The NodeMCU Internet of Things node with WiFi is used in this case. It is an open-source platform that is based on the ESP8266 chip. A few of the useful features are that it can connect to targets and send data over the Wi-Fi protocol complement. It will begin to talk to BlynkApp as soon as we connect it to WiFi. It will then be written into the keyboard and sent to the controller at a speed of 9600 baud one line at a time.

##### **ATmega328:**

We think the Atmega328 is a better virtual RISC microprocessor, and the Arduino board is an important part of our idea for a system. Because of what NodeMCU tells it, the P10 LED panel turns on. A lot of people use Arduino, an open-source tool, to make electric projects. It can handle eight pieces of data. This chip has 32 KB of memory inside it. Voltages of 1.8 to 5.5 volts will work with this. This microprocessor is mostly used with the Arduino Uno and other versions of the well-known Arduino programming tool.

##### **P10 Display:**

With the on-board driver electronics, this huge

and amazing 512 LED matrix panel can get its power straight from the board. It's simple to make timers, progress bars, graphic readouts, and other display apps that look good with this display. The ribbon wire and breakout board that come with the display module make it easy to start. If you connect it to an Arduino board, you can start exploring right away.

##### **RTC Module:**

A real time clock (RTC) is a clock unit, just like it sounds. There are 8 pins on the DS1307, and it has an I2C port and works as a real-time clock (RTC). The DS1307 is a clock and calendar that uses little power and has 56 bytes of external SRAM for backup power. There are clear lines on the clock and calendar that show seconds, minutes, hours, days, months, and years.

##### **LM35 Sensor:**

An analog linear temperature sensor like the LM35 changes its output value in a straight line as the temperature changes. North American Semiconductor made the LM35 three-terminal linear temperature monitor. Prices can be watched over from -55 degrees Celsius to +150 degrees Celsius. The LM35's voltage output goes up by 10 mV for every degree Celsius that the temperature goes up. For the LM35 to work, it only needs 5V of power. Its idle power is less than 60 uA. There is an ADC built into the LM35 that can change its analog output to a digital output. A six-channel analog-to-digital converter is built into the Arduino Uno. This means that it has six analog input ports, which are named A0 through A5. You can connect the LM35's analog output to any Arduino analog input pin.

## 5. SOFTWARE

This is an open-source project that Arduino made. It's the official Arduino tool, which is also called the Integrated Development Environment (IDE). Its major job is to write code, compile it, and send it to almost any Arduino module. That means that even people who aren't good with computers can begin to understand how to use the tool.

## ADVANTAGES

- It's very easy to use—all you have to do is type your message into your computer or cell phone, and the display unit will send it.
- There's not much use for printers these days since technology lets us get information without paper.
- Not using paper keeps trees from being cut down, which is good for the environment.
- The data is sent quickly, and the message shows up as soon as the keys are hit.
- able to run things from anywhere.

## APPLICATION

- Schools and other groups currently use bulletin boards to put up papers that tell people about events. Moving notice boards that show updates right away might be better in the future than this tech.
- People could be told at the stop when a train is going to be late instead of being told ahead of time.
- Ad: In buying malls, there are times when a lot of different things are on sale. We often tell people about new products and sales on our electronic display notice board, as well as talking to them in person.
- In charge of moving things
- Like train stops and public bathrooms.

## 6.FUTURE SCOPE

1. Putting up sign boards is a great way to get information across to lots of people. Adding language signs is one way to change the project. Anywhere in the microcontroller can be set up to use a different encoding and decoding method based on the message. This makes sure that there will be more space for info.
2. For now, our method can only hold one message at a time in the built-in RAM. We can add an EEPROM, though, so that many texts can be stored at once. A lot of messages can be shown at once, and if the power goes out, texts can be read from the EEPROM.
3. Text-to-speech generators are also helpful for blind people. They could read the news on these signs.

## 7.RESULT



A microprocessor, not a general-purpose computer, is used to make the prototype for this project. This means that there are many ways to improve it. It could be better if data were shown when there were no empty message files. A microcontroller works best when it doesn't need to show any new data and its memory addresses are empty. For telling a lot of people about something, the display board is a useful tool. People can copy and share the Internet of Things by using its protocols. You can add this feature by asking the microcontroller to use age-based different encoding schemes in different areas.

## 8.CONCLUSION

Our world is becoming more and more digital, so we will have to find new ways to change the way things are done now. When you use wireless technology, you can send data quickly over long areas. The idea for the wireless electronic notice board is no longer being planned and tested. First, the toolkit gets the message, saves it, and then checks to make sure it's real. Finally, it shows the message on the LED screen. You can see two messages at the same time. One big issue with the Internet of Things (IoT) is that texts can't be seen until security codes are entered. You can say this because the system is easier, smaller, and cheaper because the hardware and software work together. The Internet of Things (IoT) is at the heart of our digital notice board technology, which is used in building, research, colleges, and the railroads, among other places. It speeds up work, eliminates the need for paperwork, and reduces the amount of work that needs to be done by hand in some areas. There will come a time when digital ads will replace TV ads. There are already computerized screens that can be moved around in shops and big stores. The project's speed and efficiency in

getting important messages across will be very useful for people in the military and law enforcement. Hence, we are creating a fresh screen system that will allow us to view it digitally from away.

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