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Sms Based Wireless Notice Board Monitoring System

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Abstract
Establishing an IoT grounded system allows for quick data transformation, and a user may access information from anywhere in the globe. In this, we have created an IoT grounded smart notice board which is autonomous, tone-enabled, and substantially reliable. If the user uploads data to the Thingspeak pall, the data is instantly transferred to the LED attached to the display, which is always watching for communication from the stoner. By using Node MCU ESP8266 and Atmega328, the stoner can upload the communication to the LED by penetrating the Thingspeak IoT cloud. The stoner can write the data from anywhere in the world to the LED. This will speed up the process of updating the data and ensure that it gets to the intended user. As long as mobile network access is available, this gadget may be utilized wherever it is deployed. We are attempting to digitize the information in order to prevent the usage of handmade work created by a different individual. The major goal of our design is to enable the addition or removal of communications from the LED screen while seated anywhere.

Keywords: Arduino, Wi Fi module, LED matrix**,** Thing speak IoT, Adapter

1. INTRODUCTION

In the past, humans adopted paper as a medium for all communication, and printed paper is still used today to show on notice boards. The modifications in the communication that is to be shown are not as tied to these traditional notice boards. Additionally, in extreme time, resource, and force situations. One of the most popular methods for disseminating information, utilized everywhere from elementary schools to big groups, is posting notices on bulletin boards. Through wireless connection, individuals may simply and quickly connect with others when utilizing these notice boards. A Wi-Fi network has been installed in order to create a wide-area network that enables text communication through an LED display that acts as a notice board. The primary purpose of this design is to develop a wireless notice board that displays messages or information sent by users via a simple interface on an LED screen. To offer a Wi-Fi-powered automated display board that can replace the present paper-based and traditional notice boards. As a result of this text, we will have a thorough grasp of how to update the contents of a digital display using Wi-Fi. As a consequence, we experimented with an Arduino board, some bedding, and a communication concept.

2. LITERATURE SURVEY

Notice boards, that are employed by both small and big message enterprises, are one of the most common kinds of communication. The notice board is most active when we need to send information or an urgent notification to the public, although many of the documents contained in that notice are later used by organizations. This process causes deforestation,

which leads to global warming. A lot of effort is required to transport information to schools, colleges, universities, and other distant institutions as part of a program for elders transmitting critical notifications to the bulletin board. A notification system that decides, as previously described, that one big theme programme is to be supplied by thousands of people, and this approach is defined as reliable for doing so. Following numerous alerts is something I do on a regular basis. Implementing recently developed digital strategies, such as Liquid Crystal Display (LCD) and Light Emitting Diode (LED) panels, can assist in avoiding the bulk of the problems of this widely used method. somewhere, scatter Pre-existing options include GSM network systems with small scale controllers like the ATmega32, GSM Short Modem Message Service (SMS) for alerts, and sub-controls like the ARM-LPC2148 coupled to a visual display.

Darshankumar C. Dalwadi.et al and Yash Teckchandani.et al discovered how to display the notification message alone in the time provided or ready to see the text is just a creation with a limit of 160 characters Compulsory Requirement Service for Short Message Service (SMS) used for notification generation. According to Yash Teckchandani.et al, the system utilized by Nivetha S. R.et al employs a 16x2-sized LCD that does not appear to need users to lock the screen in order to verify the notification data presented on screen. In terms of reality execution, all of the above-mentioned and actual systems have some value corruption or are entirely unavailable to use. If this is the case, the implementation of this initiative might have a significant impact on environmental concerns and technological advancements. This NodeMCU project and the Android app must start with a web connection server.

They are lightweight boards. It takes time to set up a notice board for alerts. This is a huge waste of resources such as paper, ink, labour, and time. Some notice boards in train stations contain an LED indicator that shows information about impending trains. LEDs, on the other hand, are now more expensive and must be bathed in heat to last a long time. Other LCD-screen notice boards can be found on buses and at supermarkets. These messages have already been issued, and modifying the memory in the display and notification unit will take some time. In this case, an LCD projector display is more cost-effective than an LED indication for overcoming the limitations of the status of art models and saves us significant time because it can be changed at any moment. The primary purpose of a literature review is to analyse the background of the present project, which assists in detecting weaknesses in the system in place and offers instructions for issues that must be rectified. As a result, the articles that follow do more than just show the project site; they also emphasize the challenges and mistakes that encouraged you to offer ideas and work on this project. However, the GSM network is largely used for SMS or telephone nowadays. We require real notice because some locations, such as universities and train stations with a common market, require urgent notifications. With this project, we hope to begin real-time awareness. This project entails producing a message that will be sent as SMS on one hand and shown on mobile devices on the other. This received message is downloaded by the microcontroller, and the LED panel indicates authenticity. Thanks to the use of embedded communication systems, a plethora of exciting applications are now conceivable.

3. EXISTING SYSTEM

The bulletin boards are held manually in this case, with a keyboard and any bias. Installing notices on the bulletin board will take a long time. This wastes a lot of boxes, such as paper, printer paper, manpower, and time. Because the presence system is based on GSM technology, a SIM card is required to fire the transmission Notice board. The current technology also has GSM's worldwide navigation capacity, allowing us to speak with the receiver from anywhere in the globe without incurring extra costs. The disadvantages of this sort of system are that there is no word for any bone that can shoot the connection, and the connection will also be shown when there is a network problem GSM is not operating.

4. PROPOSED SYSTEM

We designed a smart IoT-based notification board for this project. To show data, we use a NodeMcu ESP8266, an atmega328, and an LED display. NodeMCU is a low-cost open source forum. We may connect to a Wi-Fi network using NodeMCU. The user can upload data to the Thingspeak cloud to be shown on the Notice board. The end user can access the data in the LED displays after it has been written. These indicators are extremely valuable for educational institutions, banks, and modes of public transportation such as trains and aero-planes. The initiative is addressing this issue by providing an electronic exhibition notice board that is linked to an Android mobile through Wi-Fi. The Wi-Fi module accepts messages provided by Android devices to the ARDUINO UNO family. On the LED screen, Arduino shows a message. This project may be used to show any information at institutions, offices, train stations, or airports.

4.1 Components Used

Arduino Uno

The Arduino Uno microcontroller board, based on the Microchip ATmega328P microprocessor and manufactured by Arduino, features opensource software. On the board, simple sets of information/output (I/O) sticks are connected to various extension sheets (protections) and independent circuits. The board has six basic I/O sticks, 14 I/O PIN codes for the computer (six of which are equipped for PWM harvest), and is organized using the Arduino IDE (Included Development Environment), which is connected to the computer through a USB type B connector. It frequently has a USB connection or operates on a 9-volt battery, although it also supports voltages ranging from 7 to 20 volts if necessary.

Figure 1: Arduino Uno

NodeMCU ESP8266

The NodeMCU ESP8266 development board comes with an ESP-12E module that houses an ESP8266 chip and a Tensilica Xtensa 32-bit LX106 RISC microcontroller. This microcontroller supports RTOS and has a programmable clock frequency range of 80 to 160 MHz. For storing programs and data, NodeMCU has 128 KB of RAM and 4MB of Flash memory. Thanks to its advanced processing capabilities, integrated Wi-Fi and Bluetooth, and Deep Sleep Functional features, it is ideal for IoT projects. You may give NodeMCU permission to use a VIN pin and a Micro USB port (External Provision PIN). supports SPI, UART, and I2C visual.

Figure 2: NodeMCU ESP8266

LED Display

The screen display technology known as an LED Display (light-emitting diode display) makes use of an LED panel as its light source. Currently, a sizable number of small and big electronic gadgets employ the LED display as a mirror and as a hub for human and system interaction.

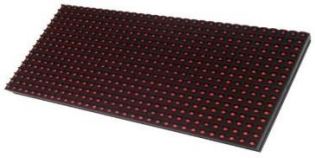

Figure 3: LED Display

4.2 Block diagram

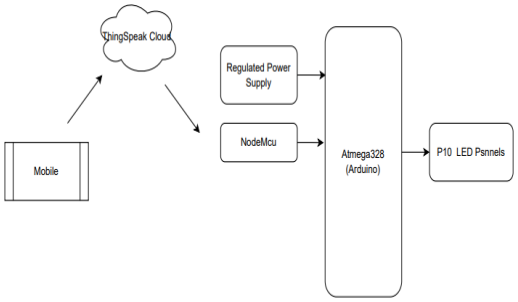

Figure 4: Block Diagram of Proposed System

4.3 Algorithm

Step 1: Collect all the components

Step 2: Arrange all the parts based on the block diagram

Step 3: Now place the adapter on the switch board and turn on the switch

Step 4: Now upload the code to Arduino by inserting one piece of cable into the USB port Arduino other to desktop/pc

Step 5: Also connect another adapter to the WiFi module

Step 6: Then the default message or previous inserted message is displayed

Step 7: We should type the message we need to display with the given link

Step 8: Then the message is displayed on the LED screen

Step 9: We can therefore change the message whenever we need to display a Specific message

4.4 Flowchart

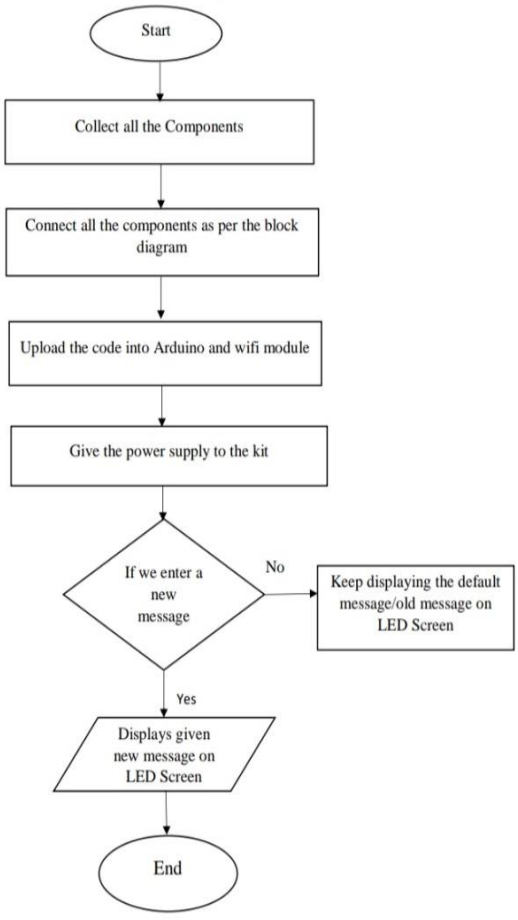

Figure 5: Flowchart of Proposed System

For this project, we'll use NodeMCU to create an Internet of Things (IoT)-based notice board that will allow you to edit the notification via a web browser. Create the linkages as per the block diagram. Two programs are used here, one from the Arduino board and the other from the MCU node. In order to acquire LED output appropriately, we can connect to p10 LED displays or higher serial connection methods. Use a USB cord to connect NodeMCU and Arduino to a laptop or computer. Then, choose the board from the toolbar and upload the code. Ensure that the Wi-Fi network your module and laptop or PC are linked to is the same. You can now view your IP address NodeMCU by opening the serial monitor. Copying and pasting this IP address into the browser's address bar. Enter your message now and click the Send button on the provided web link. The message will be shown on the serial LED monitoring. The IoT-based Digital Notice Board operates as follows. Any communication sent from any device may be seen by clicking on a web link. Using this website, you may now update the board's message from anywhere in the globe. To do this, set up every transfer along your path.

Step 1: Connect the components as per the block diagram and check all the connections before giving the power supply in order to avoid errors.

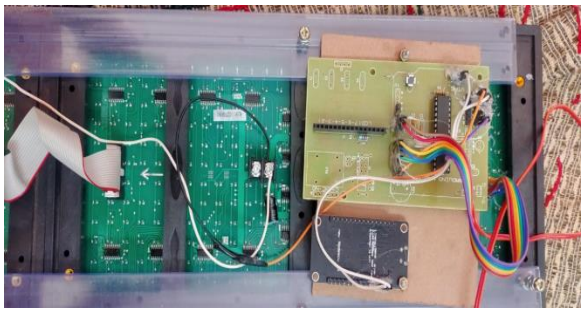

Figure 6: Interconnection of components

Step 2: Give the power supply to the total circuit using adapter and any power source.

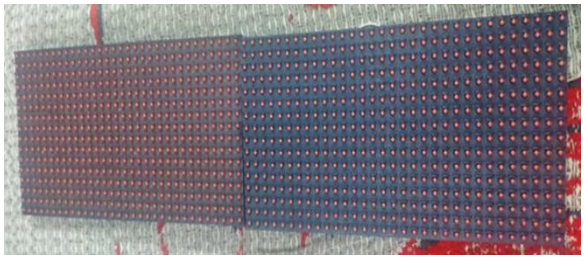

Figure 7: Turning on the power supply

Step 3: Uploading the code to Arduino as well as to the WiFi module using IDE software

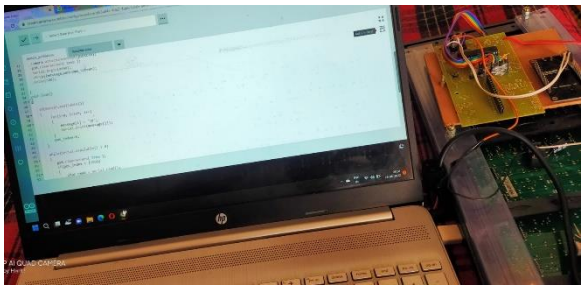

Figure 8: Uploading code into Arduino and Wifi module

Step 4: A default message will be displayed on the LED screen or any previous Message will display on the screen.

Here we have placed a default message that will occurs after giving the power supply. This default message will execute until we have given a new message as input that we want to display.

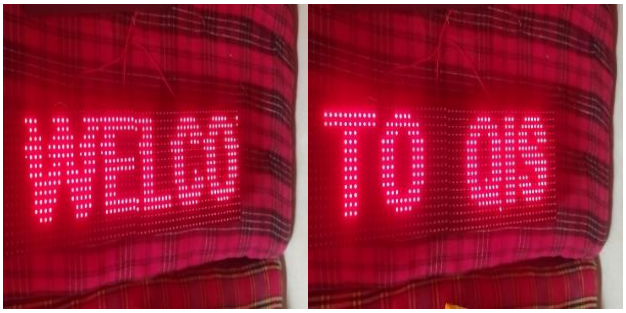

Figure 9: Displaying the default message output

Step 5: Then enter the new message that you want to display on the LED through the link provided. We can change the output from where ever in the world by simply changing the message through the link.

Figure 10: Entering our desired input message

After entering our new message that new message will start displaying until we change our input it will not stop displaying our given input message.

Given below are some of the obtained outputs when we have given input what we want to display and the results that are obtained after entering our message

5. RESULTS

Input 1: WELCOM TO ECE

Output 1 Obtained

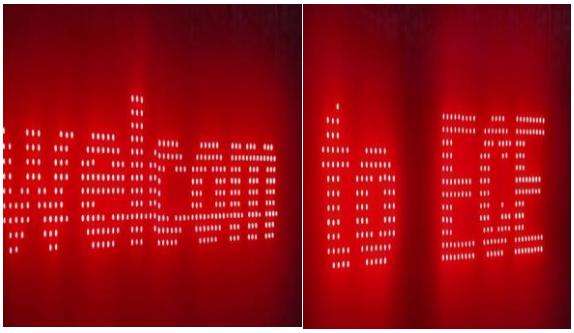

Figure 11: Output 1 Obtained

Input 2: major project

Output 2 Obtained

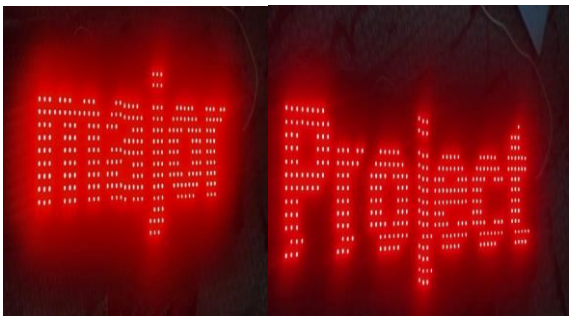

Figure 12: Output 2 Obtained

Input 3: led connection

Output 3 Obtained

Figure 13: Output 3 Obtained

Input 4: ECE batch

Output 4 Obtained

Figure 14: Output 4 Obtained

6. CONCLUSION

We conclude that cutting-edge technology is helping us slow down human activity. The suggested project can reduce workload and dependency. It is being provided a toolkit that can be used from a genuine application. Display boards are one of the most important media for educating a sizable group of end users. As technology develops, the display board systems switch from a conventional handwritten display to a digital display. Messages may be sent from any location in the world. This system has some amazing features, including a big list and a rapid way to express information. To prove its usefulness and perfection, the suggested system has undergone successful testing. It essentially cuts down on employees, paperwork, and individual time. Prototype of the WI-FI-based electronic notice board was successfully created. It is simple to integrate with any general-purpose display boards, demonstrating its viability.

The LED matrix and wireless technologies are both used to send the message. Therefore, we apply contemporary technology to make the Android app for standard boards popular and simple to use. The app receives a message from another app intended to be shown as a Short Message Service (SMS), stores it, verifies it, and displays it if it applies to the display unit in question, which is identified by its IP address. One message can only be sent at a time using this mechanism. The message may be efficiently delivered to the college right away using the suggested approach. The electronic notice board with WI-FI technology is excellently made. When a new SMS is received, the electronic notification board system confirms, stores, and displays an LED panel.

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