Dynamic Scrolling Display

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Abstract – Dynamic Scrolling Display is a conventional method of posting notices on boards for discussion, the Dynamic Scrolling Display enables us to deliver messages nearly instantly and without delay. This proposed technology can be utilized in public spaces such as campuses to improve security, raise awareness of emergencies, and assist individuals in avoiding numerous risks. Applications for Android-based personal digital assistants are used for this purpose, enabling Wi-Fi connection between them and a remote wireless display board. Two distinct applications have been realized using the established system: one for wireless person calling and the other for displaying messages on a remote display. Additionally, it saves time and money on paper and printing hardware.

Key Words: Data transfer, Wireless Communication, LED, Internet of Things (IOT), Wi-Fi.

1.INTRODUCTION

Mobile phones and associated technologies are becoming more prevalent across today's globe. People are becoming increasingly immersed in a variety of technical fields related to embedded systems and telecommunications. Over the past fifteen years, there has been a sharp rise in the usage of cell phones. The development and expansion of extremely dense networks have been aided by advancements in networking technologies. One of the most popular means of disseminating messages to the public is through notice boards, which are utilized by everything from large corporations to elementary schools. A great deal of paper is utilized, much of which is subsequently thrown away by the organizations. Global warming results from extensive deforestation that follows this. The environmental challenges that are currently causing us concern would be negatively impacted by even little creative efforts toward the routine usage of technology.

The transmitter and receiver section describes the entire procedure. When a message is received from the approved mobile device, NodeMCU extracts it and shows it on the display board. From NodeMCU to the matrix display, the entire process is serial to parallel communication. Additionally, an LCD is used for acknowledgment. The "Dynamic Scrolling Display" method that is being suggested is inexpensive, dependable, safe, and fast enough for any organization that needs to distribute notices often while minimizing manual labor. We're utilizing wireless technology. From any point within its range, we can transmit notification.

This project's proposed system has various potential applications in educational institutions and organizations, criminal prevention, traffic management, trains, advertising, and so on. The primary advantages of this application are its faster, more convenient, long-range information transmission techniques. We can strengthen the security system, increase public knowledge of emergencies, and avoid several risks by putting these recommended strategies into practice.

2.LITERATURE REVIEW

In contrast to traditional notice boards, Dynamic Scrolling Display technology provides a dependable and effective way to send messages in real time via SMS. By doing away with the need for paper and printing, this innovation improves security, emergency awareness, and cost-efficiency by utilizing Wi-Fi connection and Android-based applications.

Utilizing the ATmega32 microcontroller and various wireless technologies (ZigBee and Bluetooth), this portable, wireless electronic notice board analyzes the performance of each technology based on parameters like range, power consumption, signal attenuation, BER (bit error rate), and RSSI (received signal strength indicator). The board uses the graphical liquid display to display serial data that it gets from the wireless module receiver [1].

A device has been developed that can use an Android application to control household appliances and electronically show notifications. Thus, the hardware is capable of doing two things in general. The same program can be used by the user to type notices, which can then be displayed by clicking the send button. Since each access transacts a set amount for SMS, these features can only be used if the user has sufficient balances remaining on their SIM cards. The hardware is made up of an ARM-based microcontroller, the LPC2148, which connects to the application via a GSM mobile communication network module that reads messages from a SIM card [2].

A fundamental, inexpensive dynamic scrolling display powered by Android. The suggested system takes advantage of wireless serial data transfer based on Bluetooth or Wi-Fi. Android-based application programs are utilized for Bluetooth and Wi-Fi communication between Android-based PDAs and a remote wireless display board in this context. An Arduino Uno, a low-cost microcontroller board, is configured to receive and display messages in any of the aforementioned communication modes at the receiving end. Two distinct applications have been built using the designed system: one for wireless person calling

and the other for displaying messages on a remote digital notice board. Thus, the system that is being created will try to share information wirelessly with the target consumers while also saving money and time on paper and printing gear [3].

A wireless electronic board that provides the flexibility to control data display on several displays within a certain range. Using a serial communication protocol, the notice board can display data being delivered to it from a central dominant unit. As technology advances, producing work that is economical, efficient, and highly productive becomes essential, which makes us more likely to use automated control systems. Because errors are a natural and inevitable byproduct of this variability, human intervention, while providing selection, skill, and interactivity, may exacerbate the problem. Therefore, automating a system is a recognized way to reduce human mistake and its consequences. A wireless electronic board that provides the flexibility to control data display on several displays within a certain range. Using a serial communication protocol, the notice board can display data being delivered to it from a central dominant unit. As technology advances, producing work that is economical, efficient, and highly productive becomes essential, which makes us more likely to use automated control systems. Because errors are a natural and inevitable byproduct of this variability, human intervention, while providing selection, skill, and interactivity, may exacerbate the problem. Therefore, automating a system is a recognized way to reduce human mistake and its consequences [4].

In summary, Dynamic Scrolling Display technology uses microcontrollers and wireless technologies to enable real-time communication, revolutionizing the way that messages are distributed. This breakthrough ensures dependable and effective operations across a variety of applications, from public notifications to home automation, by improving security, reducing costs, and minimizing human error.
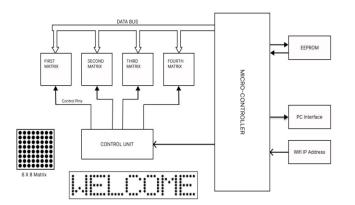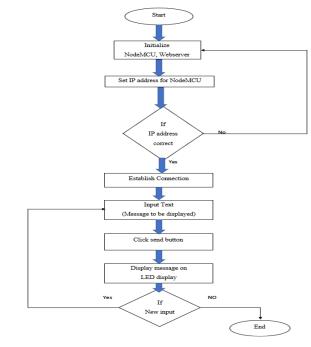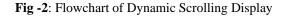
3.BLOCK DIAGRAM

Fig.1 Block diagram of Dynamic Scrolling Display

Working: Firstly, initializing the NodeMCU as well as webserver by supplying power the display will show an unset IP address. By creating a personal hotspot, the NodeMCU will receive the established connection and showing an IP address in

the display. However, often using multiple access from different persons from different connection of phones, laptops and other devices this must be connected to same personal hotspot to show the convey message. After connecting the phone with the following IP address, phone will be directly connected to the NodeMCU. After writing a notice it will directly go to the NodeMCU. Whenever NodeMCU receive a notice, it will be shown in the display. If there is a problem between connecting an android and following Ip address the message will not be shown in the display. In that case, the procedure must be restarted to assemble the whole process to work again.

4.FLOWCHART

Fig -2: Flowchart of Dynamic Scrolling Display

5.RESULTS

Fig -3: Results of Dynamic Scrolling Display

The NodeMCU displays an IP address for communication with Android devices after successfully connecting to a personal hotspot. After the NodeMCU receives a notice, it is sent straight to the display. Restarting the process is necessary to fix connection problems and guarantee that messages appear only once the Android device and NodeMCU are correctly connected.

6.CONCLUSION

As the technology is advancing every day the display board systems are moving from Normal handwriting display to digital display. Further to Wireless display units. This project develops a Dynamic Scrolling Display system with Wi-fi connected to it, which displays the desired message of the user through an SMS in a most populated or crowded places. Here by introducing the concept of wireless technology in the Field of the communication. The proposed system makes our communication more efficient and faster, with greater efficiency. It can display the messages with less errors and has low maintenance.

7.ADVANTAGES

a) The electronic notice board is wireless and no need for wires for displaying the information on the LCD display.
b) It is very easy to operate and consumes less power.
c) The circuit of the Dynamic Scrolling Display is portable.

8.APPLICATIONS

a) This project is used in school, colleges and universities to display student's results, events and important notices.
b) Also used in hotels to display welcome message and costs of all items etc.
c) In Banks these are used to display special offers, new plans and various services of them.
d) In Airports these are used to display the arrival and departure timings of planes and special messages.
e) In Railway stations these are used to show platform numbers, arrival and departure timings of trains and special attention messages.

9.FUTURESCOPE

a) This proposed system has many upcoming applications in educational institutions and organizations, traffic management, railways, advertisements etc.
b) By Using this proposed methodology, Latency involved in using of papers in displaying of notices is avoided and the information can be updated by the authorized persons.

10.ACKNOWLEDGEMENT

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