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A Short Review On Web Based Digital Notice Board

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Abstract

The Web Controlled Centralized Notice Board aims to modernize the way information is shared in educational institutions and other organizations by transitioning from traditional notice boards to a digital, web-based system. This system allows notices to be displayed on LED screens, controlled remotely via the web, and updated in real-time. Users can post, edit, and delete notices through a simple user interface, with added functionalities such as priority setting and scheduling for important notices. The use of Raspberry Pi enables seamless integration between the software and display board, ensuring automated, timely updates.
The system offers several advantages over traditional notice boards, including ease of use, real-time updates, cost-effectiveness, and reduced reliance on paper. It also supports event management, allowing organizations to manage registrations and attendance tracking. Security features, such as user authentication and data encryption, ensure that only authorized personnel can manage notices. This digital platform not only enhances communication within institutions but also improves the efficiency of delivering messages to a broader audience in public spaces like shopping malls, railway stations, and smart cities.

INTRODUCTION

The paper introduces a web-based centralized notice board platform aimed at modernizing traditional communication methods in institutions. By shifting from physical to digital notice boards, it ensures real-time dissemination of important information. The platform is designed with user accessibility in mind, allowing students, staff, and administrators to interact seamlessly. It leverages contemporary web technologies to provide a scalable and secure system. The digital notice board is accessible from any device with internet connectivity, enhancing convenience and reach. The system prioritizes user-friendly design and intuitive navigation for both administrators and viewers. Through this approach, the study addresses the challenges of maintaining physical notice boards, such as information delay and limited accessibility.
Additionally, the application offers a centralized hub for all notices, improving organization and accessibility. This innovative solution is designed to enhance information flow while reducing dependency on paper-based notices an contrast, a

digital notice board allows for dynamic, real-time updates that are more visually engaging and easier to manage. Information is displayed on an LED screen, and notices can be updated remotely via the internet. This system is highly efficient as multiple notices can be displayed at once using a scrolling feature, ensuring that all relevant information is visible to the intended audience. The platform is user-friendly, allowing administrators to easily add, update, or delete notices with just a few clicks.

By integrating interactive features, this system allows users to engage with notices and updates in real-time, offering a dynamic alternative to traditional static boards. The platform focuses on improving user experience through touch-screen interfaces and easy navigation. It is designed to facilitate quick access to essential information, ensuring that users can view and interact with notices from multiple devices. The study highlights the integration of smart features, such as the ability to filter and search for specific notices. Additionally, the system aims to reduce physical space usage and paper waste while promoting sustainability. The interactive nature of the digital notice board aims to improve user engagement and communication efficiency. Moreover, the system offers a variety of benefits, including time and resource savings, improved communication, and real-time notifications. It is also scalable, meaning it can be used in multiple locations such as schools, shopping malls, bus stations, and other public venues, providing a versatile solution for delivering information. The platform supports both desktop and mobile devices, enabling users to manage and view notices from anywhere with an internet connection, ensuring that communication is both flexible and highly accessible.

This innovative approach seeks to enhance the functionality and efficiency of notice boards used in educational institutions and organizations by replacing the conventional paper-based notices with digital content. The IoT-based smart notice board offers real-time updates, remote management, and energy-efficient operations, making communication more streamlined and accessible. The system aims to overcome the limitations of static, manual posting, providing an intelligent, automated, and interactive means of information dissemination. The study focuses on the design, development, and implementation of such a system, highlighting its potential to improve communication while reducing paper waste and administrative effort.

LITERATURE REVIEW

1. Web-Based Centralized Notice Board Platform [Samanta, I., Raha, S., Chattopadhyaya, K., Chakraborty, G., & Singh, D. (2023)].

A literature review on web-based centralized notice board systems with event management highlights the evolution of digital platforms designed to improve information dissemination and event coordination. These systems have been developed to replace traditional notice boards, offering real-time updates, notifications, and remote accessibility. Key features include user-friendly interfaces, mobile responsiveness, and cross-platform compatibility, which allow users to access notices and events from multiple devices, such as desktops, tablets, and smartphones.

Early implementations focused on improving communication efficiency by eliminating the delays inherent in physical notice boards. Over time, advanced features such as event categorization, filtering options, and automated notifications were introduced to help users easily navigate and locate relevant information. The integration of event management tools enabled users to organize, schedule, and manage events, with features like venue booking, registration, and attendee management.

Recent advancements include the incorporation of analytics tools, allowing administrators to monitor user engagement and assess the effectiveness of notices and events. Personalization features have also been added, enabling users to filter content based on preferences, enhancing the relevance of the information. The system's integration with social media platforms and other institutional software further extends its utility, making it a versatile solution for modern organizations.

2. WEB APPLICATION BASED DIGITAL NOTICE BOARD [Patil, N., Ner, S., Rasal, P., Vadakkedath, S., & Shinde, P. (2020)].

A literature review on the "Web Application Based Digital Notice Board" system reflects the shift from traditional, paper-based notice boards to more efficient and environmentally friendly digital signage solutions. Digital notice boards, implemented through technologies like Raspberry Pi, web applications, and cloud storage, are becoming increasingly popular in educational institutions and public spaces. These systems eliminate the need for manual paper notices, reducing waste and human effort while offering real-time updates.

The key innovation in such systems is the use of cloud-based storage and web applications for content management. Administrators can easily

create, edit, and schedule notices remotely, with updates displayed instantly on digital screens such as LED or LCD monitors. Technologies like HTML, CSS, and JavaScript enable responsive, user-friendly interfaces, while the back-end development, often handled through JavaScript frameworks like jQuery, facilitates seamless communication between the user and the digital board.

In addition to reducing paper usage, these digital notice boards offer greater flexibility in content delivery, supporting text, images, and videos. They also provide more control over notice scheduling and accessibility, ensuring that important information reaches users instantly and efficiently. This approach enhances communication within institutions, making notice management more sustainable and effective.

3. Interactive Digital Notice Board [Yaşa, C., Mermer, S., Köksal, B., & Edizkan, R. (2020, October)].

The "Interactive Digital Notice Board" system leverages the Digital Signage (DS) method to enhance information dissemination, addressing challenges like environmental pollution and paper waste associated with traditional notice boards. Digital notice boards have emerged as a viable alternative in places like hospitals, schools, and airports, offering rapid and systematic content delivery through dynamic interfaces. By utilizing Wi-Fi technology, content can be updated remotely from a centralized server, eliminating the need for localized control systems.

In this study, an interactive digital notice board system is developed, incorporating deep learning for age classification to enhance accessibility for older adults. When users above a certain age are detected, the system adjusts the font size to facilitate easier reading. The system's architecture includes features such as time, date, weather updates, and announcement notifications, managed through a web interface by authorized personnel for content security. The use of wireless technology allows for flexible, real-time content updates.

This system highlights the growing role of Internet of Everything (IoE) technologies, providing a scalable, efficient, and user-friendly method for content management. Future research can explore further enhancements in DS systems, such as improved user interaction and expanded content customization options.

4. Pushing the Digital Notice Board toward Ubiquitous Based on the Concept of the Internet of Everything [.Chen, P. W., Chen, Y. H., & Wu, Y. H. (2019, August)].

The integration of digital notice boards into Internet of Everything (IoE) environments offers new possibilities for ubiquitous communication, especially in contexts such as smart campuses and transportation hubs. The "Pushing the Digital Notice Board toward Ubiquitous" system proposes an interactive message exchange architecture based on the Message Queuing Telemetry Transport (MQTT) protocol. This system enables users to post messages to various digital notice boards and social media platforms through a publish/subscribe model, providing a flexible and dynamic content management experience. Unlike traditional notice boards that are constrained by location, this IoT-ready system allows users to send messages from any authorized device, offering greater versatility.

Several studies have explored the use of single board computers (SBCs) like Raspberry Pi and Arduino, as well as GSM, ZigBee, and Wi-Fi for building digital notice board systems. These systems focus on addressing issues such as user interface design, connectivity, management, and security. The proposed system introduces an advanced interaction model, allowing users, boards, and data to communicate seamlessly, promoting real-time engagement with notices.

Future research can expand on this system's ability to integrate various data sources and trigger process-to-process communication, contributing to the development of more intelligent and personalized digital notice systems for IoE applications.

5. Iot Based Smart Notice Board [Sravana Kumar, Y., Hima Varshini, D., Tilothama, D., Jagadeesh, D., & Jithendra, I. (2022)].

The IoT-based Smart Notice Board system replaces traditional paper-based notice boards with a digital, automated solution that uses wireless technology for fast and remote data transfer. The primary objective of this system is to create a reliable and efficient electronic notice board connected to a cloud server. By integrating the ESP8266 Wi-Fi module with an AT89S52 microcontroller and Arduino Uno, the system allows users to update notices remotely via a dedicated website. Messages are transmitted to an LED display in real-time, reducing the manual effort involved in updating physical boards.

This system leverages Wi-Fi for seamless connectivity, allowing authorized users to write and rewrite messages from anywhere in the world, thus improving efficiency and accessibility.

The UART protocol facilitates data transmission from the Wi-Fi module to the microcontroller, which updates the LED board accordingly. The system also includes a buzzer for notifications when new messages are received, ensuring timely information delivery.

The implementation of this IoT-based notice board reduces the need for paper, contributing to eco-friendliness, while also minimizing the costs associated with printing and labor. Future enhancements could include moving displays with variable speed and expanded applications in public spaces such as malls and highways.

6. WEB CONTROLLED SMART NOTICE BOARD USING NODEMCU [Abishek, M. R., Hameed, M. A. K., Pandiyan, A. R., Krishnan, N., & Beaula, C. A. (n.d.)].

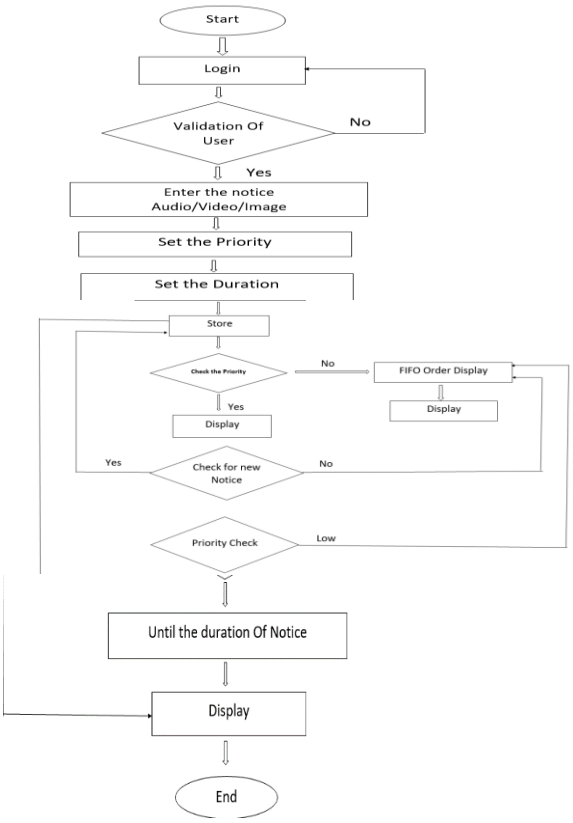
The Web-Controlled Smart Notice Board using NodeMCU represents a significant step toward reducing manual labor and paper waste through digital notice boards. This system utilizes a web-based interface, where users can navigate to a designated IP address via a smartphone or tablet to input scrolling messages that are displayed on an LED matrix. The core of the system is the NodeMCU microcontroller, which receives commands from the internet through Wi-Fi, enabling wireless control of the notice board without physical interaction.

This approach eliminates the need for paper-based notice boards, addressing environmental concerns by reducing paper waste. The use of Wi-Fi technology ensures long-range, real-time message transmission, allowing users to update the notice board from any location. The system is designed for ease of use, with the NodeMCU acting as a receiver and processor for the messages input via a web server, which are then displayed on a rolling LED matrix.

The shift from traditional to digital notice boards reflects broader technological advancements in communication systems. By enabling remote control and continuous updates, this system can be effectively utilized in public areas such as schools and shopping centers, enhancing the efficiency and sustainability of information dissemination.

METHODOLOGY

The digital notice board system requires the user to first log in. Once the user is validated, the software displays a page where the user can add notices. Notices can be in the form of text, audio, or video. While adding a notice, the user must set the priority level and the duration for which the notice will be displayed on the board. To schedule the display of notices, FIFO (First In, First Out) and priority scheduling algorithms are used. Based on these algorithms, the notices are displayed accordingly on the board. A Raspberry Pi Model B is used to connect the software system to the LCD board. Below is the flowchart that outlines the working of the system.



Experimental Method/Procedure/Design

The procedure for creating and testing a web-based online notice board with event management involves defining goals and objectives, determining user requirements, designing and developing the website, testing and validation, and ongoing deployment and maintenance. The proposed system for a web- based online notice board with event management would provide a comprehensive platform for managing events and disseminating information to a specific audience. The system would be user-friendly, secure, and feature-rich, providing a valuable tool for organizations and institutions to communicate with their stakeholders

Analysis of Proposed system

• User authentication and access control: Users must register and log in to access the system's features, with access control measures

implemented to ensure that users can only view and modify content thatthey are authorized to access.

• Notice board: The system includes a notice board where users can view and search for notices and announcements. Notices can be categorized by topic or department to make it easier for users to find relevant information.

• Notice creation and management: Users can create and post new notices, with details such as title, description, and category. They can also edit or delete their own notices as needed.

• Event creation and management: Users can create and manage events, with details such as date, time, location, and description. Users can register for events and receive notifications and reminders.

Website administrators can track metrics such as user engagement, event attendance, and revenue generated. Reports can be generated to provide insights into website performance and user behavior. Security measures are implemented to protect user data and ensure website integrity. This includes measures such as encryption, firewalls, and regular security audits.

COMPARISON

Study	Focus	Key features	Technologies Used	Finding / Contributions	Limitations
1.Pushing the Digital Notice Board toward Ubiquiltous communicati on (Chen et al.,2019)	**Integration into IoT environments for ubiquitous communicatio n**	**Interactive message exchange, publish/subscrib e model**	**MQTT protocol, single board computers(Ra spberry pi, Arduino)**	**Enhanced real-time engagement and flexible content management in IoT Application**	**Reliability of IoT infrastructu re; potential for high latency**
2.Web Application based digital notice board (Patil et al.,2020)	**Transition to digital signage in educational and public spaces**	**Cloud cloud storage, real-time updates, remote content management**	**Raspberry pi, HTML, CSS, Java Script**	**Enhanced communication and reduced paper waste., flexible content delivery**	**High initial setup costs; technical knowledge required for maintenanc e**
3.Interactive digital notice board (Yasa et al.,2020)	**Enhancing information dissemination using deep learing**	**Dynamic interfaces, age classification for accessibility**	**Digital signage technology, Wi-Fi**	**Rapid content delivery; accessibility improvements for older adults**	**Complex implementat ion of deep learning ; limited scalability**
4. Iot based smart notice board(Sravan a Kumar et al.,2022)	**Automated, digital salution for notice display**	**Remote updates, LED display, buzzer notifications**	**ESP8266 Wi-Fi module, AT89S52 microcontroll er**	**Eca-friendly and efficient notice management; impraved accessibility and reduced costs**	**Limited to small-scale implementat ions; energy consumptio n concerns**
5.Web based Centralized notice board Platform (Samanta et al.,2023)	**Digital platforms for notice dissemination and event management**	**Real-time updates, notifications, remote accessibility, user-friendly interfaces**	**Web application, cloud technology**	**Improved communication efficiency, user engagement through management tools**	**Dependency on reliable internet connectivity ; potential data security concerns**
6.web controlled smart notice board using	**Web-based control of notice boards**	**Scrolling messages, wireless control via**	**NodeMCU, LED matrix display**	**Reduction of manual labor and paper waste; enhanced sustainability in comm.**	**Limited message display capacity;**

NodeMCU(Abishek et al., n.d.)		**smartphones/tablets**			**reliance on NodeMCU for operation**

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CONCLUSION

The Web Controlled Centralized Notice Board system represents a significant advancement in the way organizations manage and communicate information. By transitioning from traditional notice boards to a digital platform, the system enhances the efficiency of posting and updating notices, ensuring that important messages are disseminated in real-time. This shift not only reduces reliance on physical materials, thereby lowering printing costs and minimizing environmental impact, but also streamlines communication processes within organizations.

The implementation of robust security measures ensures that only authenticated users can modify notices, safeguarding the integrity and accuracy of the information displayed. Additionally, the user-friendly interface allows administrators to manage the notice board with ease, regardless of their technical expertise.

With the capability to dynamically display multiple notices and prioritize them based on urgency, the system significantly improves the visibility of critical information. This feature is particularly beneficial in educational institutions, corporate offices, and public spaces, where timely communication is essential.

In summary, the Web Controlled Centralized Notice Board system is expected to provide a cost-effective, secure, and efficient solution for managing notices, ultimately enhancing communication and engagement within various organizational settings. Its potential applications across different sectors highlight its versatility and relevance in today's digital landscape.

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