Notice Board Using Mobile Application

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Abstract—

The development of simple and low-cost Android based wireless notice board is presented. The proposed system uses either Bluetooth or WiFi based wireless serial data communication. 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. At receiver end, a low-cost microcontroller board (Arduino Uno) is programmed to receive and display messages in any of the above communication mode. Using the developed system, two different applications for displaying messages on are mote digital notice board and wireless person calling has been implemented. The developed system will therefore aims in wirelessly sharing the information with intended users and also helps in saving the time and the cost for paper and printing hardware.

Keywords—

Smart Notice Board, Mobile Application, Remote Access, Notification System, Wireless Connectivity

1.Introduction

. A digital notice board implemented via a mobile application offers a modern, efficient, and convenient way to disseminate information. It replaces traditional paper-based notice boards with a dynamic, easily accessible digital platform. This system allows users to remotely manage and update the notice board, making it ideal for schools, offices, and public spaces.

Application Based Digital Notice board to share information in public premises quickly. With the help of web site and database to store information that shared by user in the android app can easily transferred to digital board. The proposed model is a cost effective, portable and it has high efficiency in the real time. The user and admin can edit/delete message at any time after posting and also the user can set the scroll time of notice.

2.Literature Survey

. A literature review on mobile applications for notice boards reveals various approaches to modernizing traditional notice boards, including using Android apps for remote control, voice-based interfaces, and IoT integration. These applications aim to replace paper-based notices with digital displays, offering real-time updates and efficient information dissemination.

1.Mobile Control and Remote Management:

Android application are used to send messages to digital displays enabling administrators to update notice remotely.

2. Voice-Based Interfaces:

Voice commands through Android apps can be used to control notice boards, simplifying updates and making them hands-free.

3. IoT Integration:

Microcontrollers like Arduino, Raspberry Pi, and GSM modules are used to connect to displays and networks, allowing for real-time updates and potentially remote control via mobile apps.

3. Proposed System:

A proposed system for a mobile applicationdriven notice board would involve a digital display at the location, a server-side application to manage notices, and a mobile application for posting and viewing notices. Users would post notices through the mobile app, which would be sent to the server, and then displayed on the digital notice board.

3.1 Key Features of the System:

1. Remote Posting and Viewing:

Mobile App Interface:

Users can access the notice board and post new notices directly from their smartphones or tablets.

Remote Posting:

Authorized users can post notices from anywhere with an internet connection.

Real-time Updates:

Changes made to the notice board are immediately reflected on the app, ensuring users have the latest information.

Multi-Platform Support: The application could be available for both Android and iOS devices.

2.User Management and Security:User Authentication: The system would require users to log in with their credentials to post or edit notices.

Role-Based Permissions: Different users could have different levels of access (e.g., administrators can post and edit notices, while regular users can only view them).

Password Security: Secure password storage and management to protect user accounts.

3.User-Friendly Interface and Notifications:

Intuitive interface: The app should be easy to navigate and use, with a clear and organized layout.

Efficient notification system: Users can receive push notifications for important announcements, ensuring they don't miss critical information.

Multi-platform compatibility: The app should be available on both iOS and Android platforms.

3.2 UI Flow:

The UI flow will be as follows.

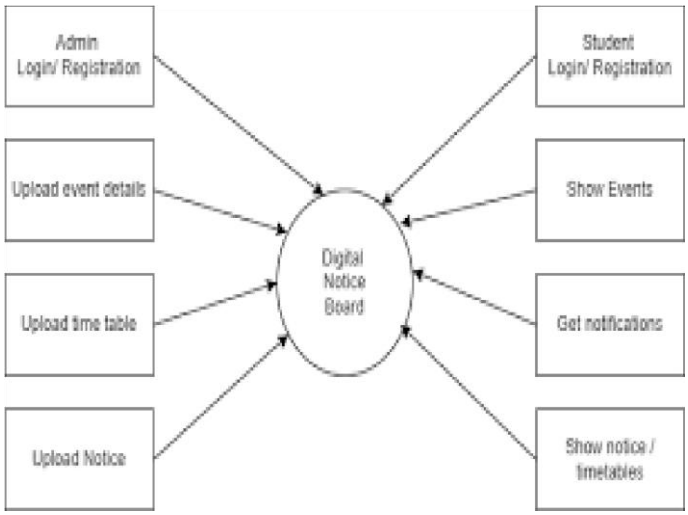

Figure.UI Flow of system

4.Components Used:

1. Mobile App Interface:

User Interface (UI):

This is how users interact with the app. It includes elements for creating new notices, editing existing ones, browsing the notice board, and managing user profiles.

Functionality:

The app needs to handle notice creation, including text entry, image/document uploads, and possibly voice recording or voice-to-text input.

Communication:

The app must be able to connect to a server to send and receive notice data, and it might also need to connect to the hardware display wirelessly using technologies like Bluetooth or WiFi.

2. Server (Backend):

Database:

A database is needed to store notice data, user information and other relevant details.

Processing:

The server handles tasks like data validation, routing notices to the correct hardware display, and potentially managing access controls or permissions.

Cloud-Based:
Many modern notice board system leverage cloud services for scalability reliability and ease of managements.

3. Hardware Display:
Display Device:

This could be an LED matrix, an LCD screen, or a combination of both.

Microcontroller:

A microcontroller is responsible for receiving data from the server (or mobile app) and controlling the display.

Connectivity:

The hardware display needs to be connected to the server or mobile app using a wireless technology like

Bluetooth, Wi-Fi, or GSM.

Power Supply:
A reliable power source is essential to ensure continuous display of notices.

Examples of Technologies Used:
1.Bluetooth: Used for wireless communication between the mobile app and the microcontroller.
2.Wi-Fi: Used for wireless communication between the mobile app and the microcontroller.
3.GSM: Used for wireless communication between the mobile app and the microcontroller, often for more long-distance communication.

Purpose:

Users can access the latest information promptly, ensuring they are kept informed about events, deadlines, or important announcements.

How it works:

A mobile app-based notice board system allows users to remotely update and view notices on a digital display. The system typically involves a

mobile app, a microcontroller, and an electronic display (like an LCD or LED). Users send notices via the app, which then transmits them to the microcontroller, which in turn displays them on the electronic display.

1. User Input and Transmission:

Mobile App:

The app provides a user-friendly interface for creating and sending notices. This can include features like text input, image or video upload, and even voice commands.

Wireless Communication:

The app uses wireless communication (like Bluetooth, Wi-Fi, or GSM) to send the notice data to the microcontroller **2. Microcontroller Processing:**

Receive and Decode:

The microcontroller receives the data from the app and decodes it.

Display Control:
The microcontroller then controls the electronic display, displaying the notice content.

3.Display:

Electronic Display:

The notice is displayed on an electronic display like an LCD, LED, or other digital display.

Real-time Updates: The system allows for realtime updates, so the notice board can be changed quickly and efficiently.

5.Study of Research Paper:

A study on notice boards using mobile applications explores the development and implementation of digital notice boards, replacing traditional paper-based systems with mobile applications and IoT technologies. These systems enable remote control, instant updates, and various data formats, offering a more efficient and convenient way to disseminate information.

Connecting mobile applications with physical display devices using IoT technologies like WiFi or Bluetooth for remote control and data transfer. Creating user-friendly mobile applications for sending and managing information, including text, images, PDFs, and videos.

Employing wireless communication protocols like Bluetooth, Zigbee, or GSM for sending data from the mobile app to the display device. Implementing security measures like password

protection or authentication to ensure authorized users can access and control the notice board.

5.1Future Scope:

The future of notice boards using mobile applications is focused on enhancing communication and information sharing in various environments. This includes integrating with IoT devices for real-time data display, supporting multimedia content, and offering cloud-based remote management. Mobile apps will also feature personalized notices, voice control, and potential integration with AR/VR technologies for immersive experiences.

Mobile apps can deliver tailored information to specific users based on their roles, interests, or location. Beyond static text, notice boards can display videos, interactive maps, and other multimedia content. Voice-activated interfaces can allow users to quickly access information or update the notice board content. Immersive experiences can be created by using augmented or virtual reality to enhance the user's interaction with the notice board

Cloud-based platforms can enable remote management of the notice board, allowing administrators to update content and monitor performance from anywhere. Integrating with IoT devices can enable real-time data display, such as weather updates, traffic information, or sensor data. Apps should be available on various platforms (Android, iOS) and accessible through web portals.

Notice boards can be tailored to accommodate different languages to ensure inclusivity for diverse audiences. Considerations for users with disabilities, such as text-to-speech functionality and visual aids, should be included Block chain technology can enhance data integrity and security by providing a tamper-proof record of updates.

Secure access control mechanisms can ensure that only authorized users can modify the notice board content. Displays in bus stations, train stations, and airports can provide real-time information and alerts. Notice boards can be used to display academic schedules, event notifications, and exam results. Notice boards can provide important information to patients and visitors.

Notice boards can be used to communicate announcements, update policies, and share important information. Notice boards can display community events, emergency alerts, and other important information for the general public.

Conclusion:

A mobile notice board application offers a significant advancement over traditional physical notice boards, providing real-time updates, enhanced communication, and reduced reliance on manual processes. By leveraging mobile technology, these systems facilitate faster information dissemination, wider reach, and greater flexibility in content management.

Mobile notice boards streamline communication by allowing users to access information on their devices, eliminating the need to physically check physical notice boards. This is especially beneficial in settings like educational institutions, offices, and public spaces where information needs to be readily available

Unlike static physical boards, mobile applications allow for immediate updates and changes, ensuring that information is always current and accurate. This is crucial for conveying timesensitive announcements, alerts, and other important news.

Mobile notice boards minimize the need for manual posting, updating, and maintaining physical boards. This saves time and resources for administrators, allowing them to focus on other tasks.

Mobile applications can reach a broader audience, including individuals who may not regularly visit physical notice boards. This is particularly useful for conveying information to remote employees, students, or members of the public.

Mobile notice boards can be customized to suit various needs and preferences. They can be designed to display different types of content, such as text, images, videos, and interactive elements.

By reducing the need for physical printing and posting, mobile notice boards contribute to environmental sustainability. They also help minimize paper waste and reduce the need for manual printing and distribution

Mobile notice boards can be integrated with data management systems to track information dissemination and measure user engagement. This allows administrators to assess the effectiveness of their communication strategies and make datadriven decisions.

Mobile notice boards can be designed with accessibility features to ensure that all users, including those with disabilities, can easily access information. This can include features like voiceactivated controls, larger font sizes, and screen readers.

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