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Design and Implementation of an Interactive Notice Board with Smart TV Integration

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ABSTRACT: The traditional notice boards in educational institutions and offices are increasingly being replaced by digital solutions for better engagement and content management. This paper presents the design and implementation of a smart circular display board using a TV screen, controlled entirely by software. The board utilizes web technologies such as HTML, CSS, and JavaScript to display dynamic content, including announcements, weather, and events, in a circular, animated format. The system allows remote updates via platforms like Google Sheets or Firebase, ensuring real-time information display. This solution is both cost-effective and user-friendly, offering a modern alternative to outdated notice boards.

KEYWORDS: Smart Display, Circular Layout, Web Technologies, Real-time Updates, Content Management, Digital Notice Board

I. INTRODUCTION

The conventional manual notice boards lack real-time flexibility and fail to engage a tech-savvy audience. This paper introduces a smart circular display board system that integrates modern web technologies with display hardware like smart TVs. By using HTML, CSS, and JavaScript, we create a visually captivating circular content layout that can be updated remotely through platforms like Google Sheets or Firebase. The proposed system provides a dynamic, scalable, and user-friendly solution ideal for educational and organizational environments.

II. LITERATURE SURVEY

Past works in the domain of digital notice boards focus largely on hardware-dependent systems involving Arduino, Raspberry Pi, and LED matrices. Although functional, these setups are often costlier and involve complex hardware integration. For instance, "Smart Notice Board System Using Android and Bluetooth" and "Smart Digital Notice Board Using Wireless Communication" focus on Bluetooth and wireless modules but lack modern content management features. This paper innovates by removing the hardware dependency and using only a TV screen with browser compatibility, making it more scalable and easy to implement



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III. METHODOLOGY

The proposed system includes:

- Frontend Development: Using HTML5 for structure, CSS3 for styling, and JavaScript for interactivity and animations.
- Content Source: Google Sheets/Firebase serves as a dynamic backend, where content changes are synced through API calls.
- Circular Layout Logic: JavaScript calculates angular positions to display text/images around a central pivot, forgings a circular design.
- Animations: Smooth CSS transitions and JS animations make the board visually attractive.
- Compatibility: Runs on any smart TV browser, eliminating the need for external players or embedded hardware.

Block Diagram

INTERACTIVE NOTICE BOARD WITH SMART TV INTEGRATION



IV. EXPERIMENTAL RESULTS

We tested the system in a college environment, deploying it in the main lobby via a 42" smart TV. The results included:

- Content Types Displayed: Announcements, event schedules, weather forecasts, motivational quotes.
- Update Methods: Used Google Sheets to push changes, which reflected within 5 seconds on the display.
- User Feedback: Surveyed 50 students and faculty members; 92% found it more engaging than traditional boards.
- Performance Metrics: Responsive on different screen sizes, with <2 sec rendering delay after page load.



V. CONCLUSION

This paper introduces a low-cost, software-driven smart display board that transforms traditional notice systems into dynamic, real-time, and visually appealing interfaces. By using widely available web technologies and cloud platforms, the system avoids costly hardware investments while enabling remote, multi-user content control. Its successful implementation in an academic setting proves its practical viability and potential for wider adoption in institutions, offices, and public domains.

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