

# Enhancing Information Dissemination in Large Institutions Using Smart Screen Technology and Web Applications

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## Abstract:

Effective dissemination of information to audience in institutions of higher learning is a critical challenge in today's interconnected world. Conveying timely information to every individual can be arduous due to scale. Smart screens offer a dynamic solution by facilitating internet-enabled transmission of announcements to strategically positioned displays. This method ensures swift delivery of vital information to target audiences. The consequences of information gaps can be dire in urgent scenarios where missed information might be adversely affected. Both conventional and social media platforms have limitations in reaching targeted populations when distributing information. This paper aims to explore the potential of enhancing information dissemination through the fusion of smart screen technology and web applications. This strategy mitigates the risk of unintended recipients viewing urgent messages while ensuring that those intended receive it promptly. It employs a technological stack encompassing Node.js, Express.js, MongoDB, HTML, CSS, and JavaScript to provide both a robust back-end and user-friendly front-end interface. Testing, deployment, and debugging processes ensure functionality, usability, and scalability of the application. The web application test results show an overall performance of 98%. It overcame the limitations of traditional communication methods, by offering a promising avenue for future research and development, hinting at the potential for widespread implementation.

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Undoubtedly, the value of ensuring timely and accurate information flow within any institution is paramount. This significance becomes all the more apparent when dealing with organizations of substantial size and population, such as educational institutions. The challenge lies in the effective dissemination of vital information to each individual within these vast cohorts, a task often made arduous by the sheer scale of the audience [1]. This becomes especially critical when conveying time-sensitive details like application and submission deadlines, which hold profound importance for students and staff alike [2]. Traditional means of communication, like bulletin boards, have proven to be inadequate in reaching the intended recipients in a prompt manner, leading to ineffective outcomes, particularly in contexts where urgency is paramount [3].

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