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## Centralized Digital Signage

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**Abstract--** The web-based multiscreen digital signage (DS) system is designed to show a screen that is connected by a network. In this, it uses standard web technologies to display the same content. Walk into any store, hotel, airport, school, movie theatre, health club you name it and it's likely you will encounter a digital display that is advertising a product, promoting a brand, providing you with direction or even inviting the world of digital signage a major new communications medium for reaching people wherever they are: shopping, traveling, going to school and more. Relative have led the way in digital signage. With the right screens in the right places showing the right content, digital signs enhance the in-store experience and deliver on the bottom line, providing a way to showcase hot new inventory, promote closeouts and give shoppers the new ideas that drive sales.

**Keywords--** Digital Signage, Web application, advertising, screen display, media, networks, advertising on multiple screens

### I. INTRODUCTION

Digital Signage exposes dynamic visual information such as urgent news, weather forecast, entertainment, and other subjects with the aim to capture the viewer's attention. Digital signage has been used in different applications, such as in promotion and launching of products and services, conveying information to customers in a certain environment. In Kerala Heritage Rescue floods and earthquake displayed information on large screens was useful for emergency evacuation.

DS can be used for several purposes simultaneously such as –

- a) *Public information* – news, weather.
- b) *Product information* – pricing, photos, raw materials and other product information.
- c) *Advertising and Promotion* – promoting products or services.
- d) *Brand building* – in-store digital signage to promote the brand and build a brand identity.

- e) A method for interactive application of DS through a scheduling framework. The scheme has been demonstrated by scheduling the content of the DS by independent and series-parallel displays. Our proposed DS system suggested the interactivity of DS by means of display to display (D2D) communication. The simultaneous use of DS display for both purposes of advertisement and communication can be possible in this method.
- f) Digital content displayed on the signage is presented in one of the following formats:
- g) Text, Images, Video, Context-aware interfaces.

### II. RELATED WORKS

Digital signage is a widely-used terminology for digital displays with a centrally managed multimedia content that is used for conveying advertising, informational, entertainment, and commerce messages to a target audience[2] Digital signage was initially a standalone display situated in a specific location with an attached computing device that enabled the playing of multimedia content. This content could be changed/updated as needed by an operator who would physically access the display, manually remove the old content, and install the new content.

In general, a distributed digital signage system consists of four major components: hardware, software, network, and content. The hardware component, in general, comprises a digital display (e.g. monitor or LCD television). The network component for a digital signage system usually employs the existing network, For example: in a company, this would be their wired/wireless network (i.e. Ethernet or Wi-Fi).

The content component for a digital signage system is typically a combination of audio, image, and/or video elements that usually are not interactive—the audience can only view but not interact with the content.

Initially, the contents tend to be advertising and marketing messages but eventually is widely used for public information purposes by communities, governments, and public institutions.

### III. COMPONENTS IN SYSTEM

The entire system includes 3 main components for the user:

1. Digital Signage Central Signage Server (CSS)
2. Digital Signage Client
3. Digital Signage Sync

### IV. METHODOLOGY

The initial efforts in the study described here were observations and interviews of village level officials concerning their methods of disseminating information in their local communities. Based on these observations and interviews we identified general requirements and developed the initial design for a distributed digital signage system that will meet the needs of these officials. We further fine-tuned these designs by contextualizing the points for systems in developing countries. A prototype of the system was then developed and tested.

The master parameters of Sync along with database are set here.

For sync there are 3 options:

1. Shared location.
2. FTP Server.
3. Central FTP for cloud.

### V. SYSTEM ARCHITECTURE

The basic concept of the proposed architecture contains the idea of communication between displays to make interactivity possible between them.

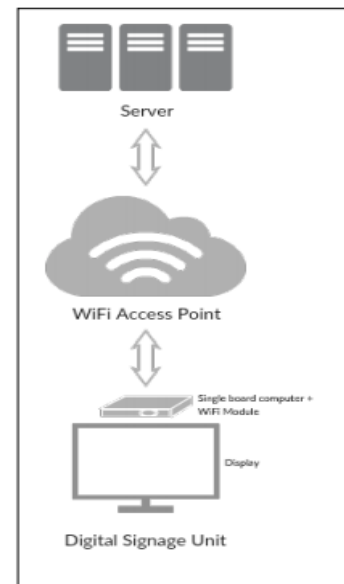
Systems that are targeted to be deployed in developing countries should as much as possible rely on local components, have available local skills that can maintain them, and require minimal maintenance.

The majority of work in distributed digital signage systems has been in developed countries and insufficient work has been done concerning the adaptation and implementation of these systems to developing countries.

The architecture for the digital signage system consists of three nodes: a server, an access point, and a digital signage unit. The diagram for the architecture is depicted in Fig. 1.

The server can be a single machine or a collection of machines such as in a server farm. All content is uploaded, stored, and managed in the server b/y a content administrator.

The digital signage unit is placed in an area that is visible to its target audience and consists of a display to show the intended content and a single board computer to locally store the content and to control the display. The display is any monitor or television, which can be purchased in any consumer electronic store that has a connector that is supported by the single board computer, in order for the computer to be able to control the display.



**Figure 1: System Architecture**

One advantage of using an access point is that since the access point will blanket the whole area where the digital signage is located so that several digital signage units can be deployed in that area. Moreover, since the access point is connected to a provider, clusters of digital signage can be established within the coverage area of the provider, greatly increasing the reach and scale of the digital signage system.

In a Digital signage system, the server will run a Content Management System (CMS) in order to manage all content in the system. The function of this CMS is not only to distribute, manage, and store all relevant content but also to inform the digital signage units of any new content so that the content can be retrieved by the unit.

The digital signage unit will typically run a multimedia player in order to display the content and a local content manager to check the server for any changes and to retrieve any new content.

### VI. DISCUSSION

Open source software is used because of its wide adoption and understanding in developing countries; when issues arise it can be resolved by local experts. For the communication protocol, hardware readily support Wi-Fi and assorted open source network tools are already available. The aim of the long-term deployment is to determine system viability and to identify aspects of the system that require further development. Besides a long-term deployment of the system, there are several lines of future work for this research: adding interactivity into the system.

### *Hardware and Software*

**Table 1:  
Hardware**

<b>Developer Requirements</b>	<ul style="list-style-type: none"> <li>· Desktop or Laptop</li> <li>· Ram 8 GB computer</li> <li>· Network</li> <li>· Internet Connectivity</li> <li>· Wi-Fi modem</li> </ul>
<b>User Requirements</b>	<ul style="list-style-type: none"> <li>· LCD or LED</li> <li>· Wi-Fi modem</li> <li>· Network</li> <li>· Internet connectivity</li> </ul>

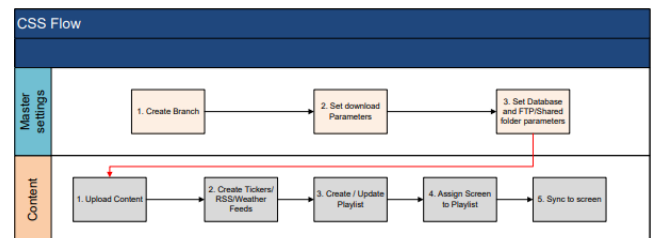
**Table 2:  
Software**

<b>Developer Requirements</b>	<ul style="list-style-type: none"> <li>· Microsoft Windows 7 OS or higher</li> <li>· Visual Studio 2010 or 2012</li> <li>· Microsoft SQL server-2012</li> <li>· Browser (Google chrome, Mozilla Firefox, Internet explorer, etc.)</li> <li>· Display thing as per blueprint</li> </ul>
<b>User Requirements</b>	<ul style="list-style-type: none"> <li>· Create a blueprint to display</li> </ul>

### VII. FLOW

Flow charts depicts the flow of the whole system, where admin will first logs in. After the admin logged in the system, the admin can control the menus of the system. The admin can perform Master Settings like Create branch, Set parameters, Set database and FTP shared folder parameters.

After the admin completes master setting the following content will be used by admin: Upload content, Create Ticker/ RSS / Weather Feeds, Create Upload Playlist, Assign screen to playlist, Sync to screen.



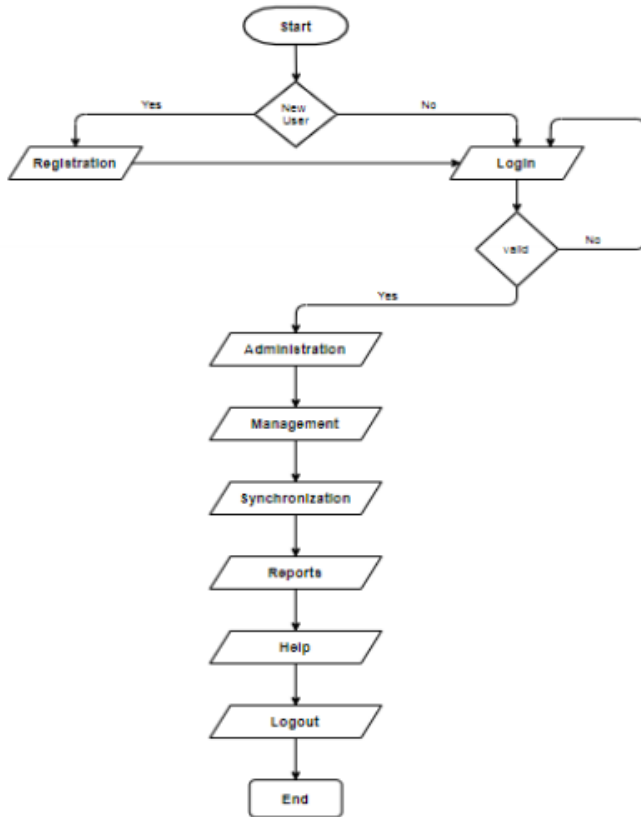
**Figure 2 : System Flow**

### VIII. CONCLUSION

As per the above content, we can conclude that it's a multimedia, engaging technology that can grow your business and transform the customer experience. It produces video base education contents, advertisement and contents for notices that could be used by advertisers for efficient and effective content distribution.

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**Figure 3: Flow Diagram**