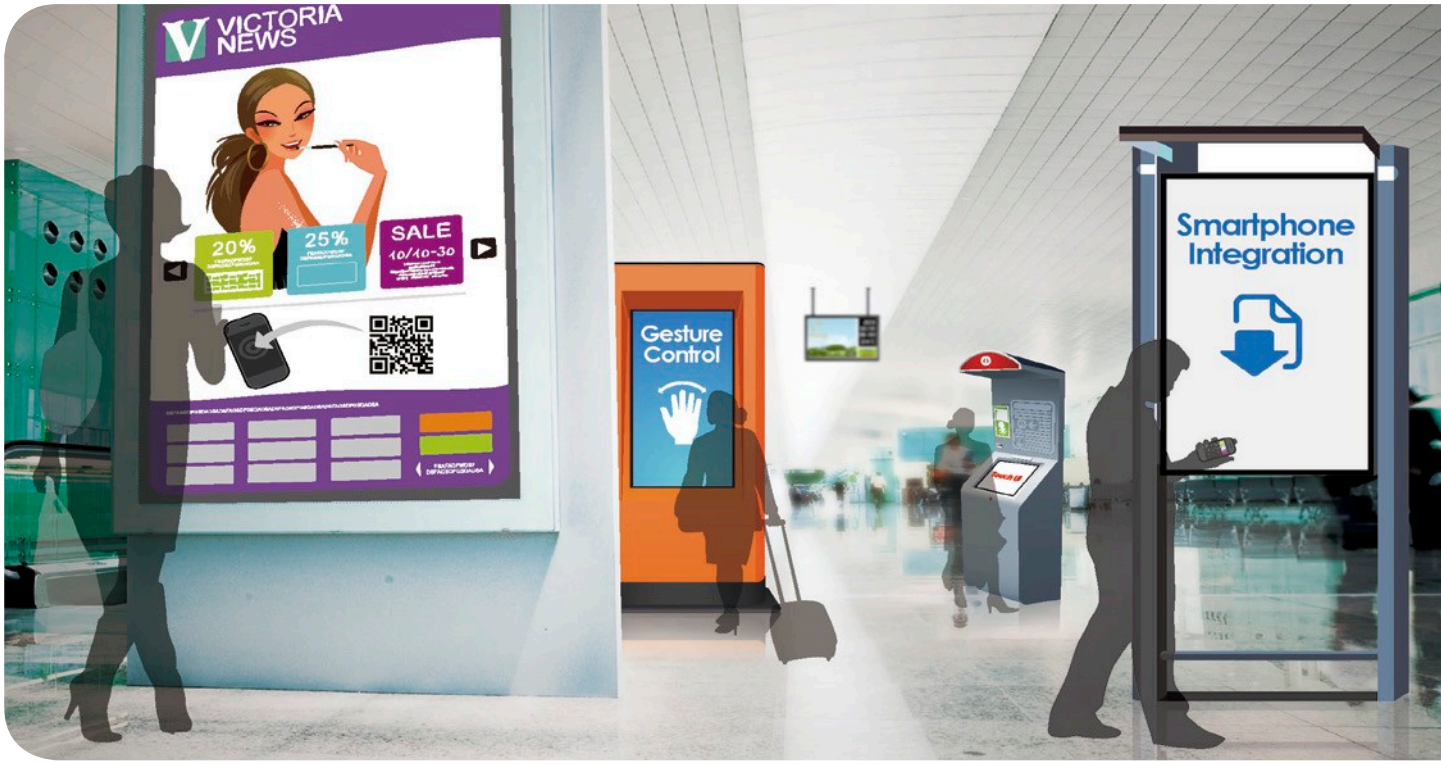

White Paper

Digital Signage Responds to Its Audience

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Digital signage as an advertising tool aims to convey ideas, leave impressions and persuade an audience to take actions. Informative messages, extraordinary visual images and sound effects are used to catch the audience's attention. As new technologies emerge, digital signage providers are currently playing with the idea of audience interaction and assessing its commercial potential. Digital signage is increasingly integrated with interactive technology which can not only be used for advertising but also react to the trend of social, local and mobile (SoLoMo). Prevailing interactive technologies include anonymous video analysis, gesture recognition, touch screen, and smartphone integration.

Anonymous Video Analysis Seizes Power of Information

Digital signage capable of video analysis helps advertisers seize the power of information. While playing advertisements, digital signage can detect a viewer's presence, count dwell time, complete a head count and gather other important demographic data, such as gender, age and ethnicity. Based on this information, an advertiser can tell whether the content displayed is compelling, what captures the viewer's attention, which groups of viewers are attracted, whether the digital signage is installed in the correct location and help evaluate if digital signage is a good investment.

Figure 1. As new technologies emerge, digital signage providers are currently playing with the idea of audience interaction and assessing its commercial potential.

Before video analysis, evaluation of return on investment for digital signage was difficult to measure; this is because an advertiser could only gauge a viewer's reaction by physically watching the person viewing the deployment. Therefore, interactive digital signage; which can gather data on audience behavior, is extremely beneficial to advertisers. In addition, digital signage with capability of video analysis can also help advertisers to deliver a better message to the right audience.

For example, a promotion targeting a teen audience should obviously be targeted at this particular audience. Once the advertisement is active, advertisers can run analysis to see whether the message is effective and has been viewed by the right audience. If not, advertisers can make amendments to the campaign content or signage location to improve overall effectiveness.

The collection of any form of data collection can raise issues regarding privacy. In response to these concerns, video analysis has moved towards anonymity to protect viewers who prefer to be invisible. Anonymous video analysis which collects data in real time for marketing analysis whilst allowing viewers to remain "off the radar" is the obvious way forward.

Gesture Control Lets Body Speak

While some digital signage software can perform video analysis, others allow viewers to communicate without physical contact. Digital signage equipped with cameras can capture body movements, which will be interpreted as command, and act on them.

For instance, American retailer Wal-Mart used interactive digital signage for a holiday sales promotion, which allowed the audience to choose selected products by waving their arms in the air. Thus to acquire detailed product information including retail price, product specifications and other key data, the audience would just have to point at the selected item.

The virtue of a gesture-based interface is that the audience can interact with digital signage without having to make any form of physical contact. Gesture recognition is so convenient that even people with a handful of shopping bags can participate without putting down their belongings.

In addition, the camera and software is so advanced that it can be programmed to detect and recognize gestures of people that are several meters away from the screen. This feature allows advertisers to use larger screens with wider viewing angles to enhance the viewing experience.

Let the Fingers Do the Talking

Touch screen technology is another predominant method of interaction. Different from gesture recognition, touch interfaces require physical contact. It can precisely distinguish a viewer's intention and leave positive impressions.

MasterCard installed touch screen digital signage to promote its online shopping service. It allows

viewers to browse various promotional offers and get bargains by entering an email address with the on-screen keyboard. This kind of promotional activity is not possible with gesture recognition systems.

In fact, gesture recognition may be affected by environmental factors. For instance, a gesture can be recognized differently under different illumination conditions. As a result, there is a chance digital signage could display undesired information and disappoint viewers. Therefore when highly accurate information is required touch interface can be useful and improve customer satisfaction.

Furthermore, touch command like online behaviors can be monitored and used to track what content the audience is interested in. This information can also be analyzed to help advertisers plan marketing strategies in the future.

Smartphone, the Digital Signage in Your Pocket

It's a well known fact that smartphone has distracted people from digital signage. Those who usually glance around, now have their eyes glued to a small phone screen. As consumer behavior changes, digital signage begins to integrate mobile technology to hold on to every opportunity to win public attention. Smartphone has a screen, wireless connectivity, camera, third party applications, and various features opening opportunities for more interaction for digital signage, too.

Figure 2. Prevailing interactive digital signage technologies include anonymous video analysis, gesture recognition, touch screen, and smartphone integration.

As a matter of fact, a smartphone can be regarded as extension of digital signage. Digital signage can send advertisements to viewers who can store information on their own mobile gadgets, carry the information around and access it whenever it is required.

For example retailers can deliver more detailed product information to smartphone via digital signage. Museums can provide floor plan and tour guides to visitors. Those who read information on smartphones essentially interact with digital signage.

With downloaded content, a smartphone essentially becomes a miniature digital signage player which can break time and space boundaries. In addition, with digital signage now moving onto smartphone advertisers can communicate with multiple viewers at the same time.

Smartphone integration also allows viewers to interact with digital signage in various ways. Mobile technologies which can be exploited also include QR codes, web browsers, short message service (SMS), near field communication (NFC), radio frequency identification (RFID) and Wi-Fi.

For instance, the Discovery channel once erected digital signage in New York to promote a new TV Series called "Storm Chasers". This digital signage campaign created the augmented reality of viewers blown off their feet by storms. Viewers could either text to a number to receive a link to the photo on Facebook or have photo sent via email.

Though digital signage can not initiate the connection, advertisers can provide incentives, such as exciting experiences, coupons and exclusive offers to encourage viewer engagement. For example, digital signage in the retail store can send product details alone with coupon to smartphone users. In the best-case scenario, it will tickle viewer's fancy and awaken desire of purchase.

Figure 3. Mobile technologies which can be exploited also include QR codes, web browsers, short message service (SMS), near field communication (NFC), radio frequency identification (RFID) and Wi-Fi.

Conclusion

Digital signage combines interactive elements like anonymous video analysis, gesture recognition, touch screen, and smartphone integration providing more information to both viewers and advertisers. It also stands for fun and satisfies individual needs for information. In comparison with conventional digital signage which only provides unilateral communication, interactive digital signage increases display effectiveness, enhances viewer experiences and has a better chance to leave impressions and to elicit purchase.

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