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## Advertisement Driven Augmented Reality Navigation In Shopping Malls

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## **Advertisement driven augmented reality navigation in shopping malls**

### **ABSTRACT**

Malls and shopping centers employ advertising placed throughout their physical facilities. However, such advertisements often lack any information on the location of the corresponding store within the facility and, consequently, provide no cues regarding how to navigate to the store from the location at which the advertisement is displayed. The techniques described in this disclosure enable an individual to navigate to an establishment upon encountering an advertisement for the establishment within a physical environment. With user permission, an augmented reality (AR) capable device is used to scan the advertisement and locate the advertiser's store that is closest to the user. The device is then switched to an AR navigation mode to direct the user from the current location to the location of the store.

### **KEYWORDS**

- Augmented Reality (AR)
- Advertisement
- Shopping mall
- Navigation
- Global Positioning System (GPS)
- Store location

### **BACKGROUND**

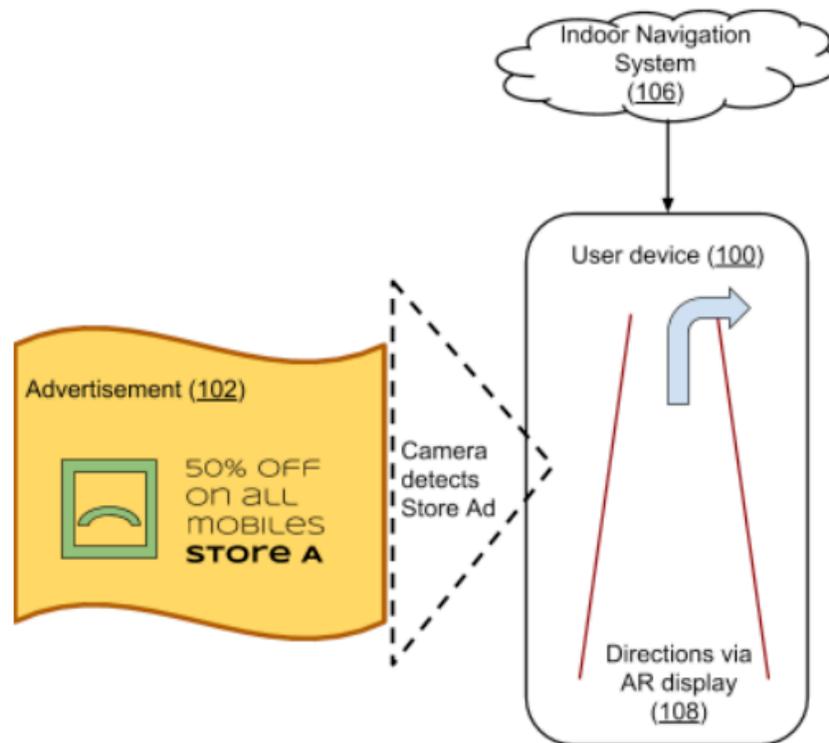
Malls and shopping centers employ advertising placed throughout their physical facilities. For instance, advertisements are posted along walls or columns or exhibited at kiosks located throughout the shopping facility. Many of these advertisements promote goods and services offered by stores within the shopping facility. However, such advertisements often lack

any information on the location of the corresponding store within the facility and, consequently, provide no cues regarding how to navigate to the store from the location at which the advertisement is displayed.

## DESCRIPTION

The techniques described in this disclosure enable an individual to navigate to an establishment upon encountering an advertisement for the establishment within a physical environment, such as a shopping mall. People who see an advertisement for a product or service of interest can scan the advertisement using devices with augmented reality (AR) capabilities, such as smartphones, AR glasses, etc.

With user permission, the scan triggers the device capabilities for recognition and search for the business that is promoting the content featured in the advertisement. Once the business is identified, the location of a store closest to the user's current location is determined. If the user permits, the device is switched to an AR navigation mode to direct the user from the current location to the location of the store. Outdoor navigation can use the Global Positioning System (GPS) while indoor navigation can leverage indoor navigation techniques, including techniques that utilize images obtained with the device camera and computer vision techniques to offer guidance.



**Fig. 1: AR based navigation to the location of an advertised business in a shopping mall**

Fig. 1 shows an operational implementation of the techniques described above. A user carrying a user device (100) walks in a shopping mall and sees an advertisement (102). The user activates a camera of the user device which detects the store advertisement and determines that it is for a particular store (“Store A”) within a shopping mall. A search is performed for the location of the particular store near the user’s current location, e.g., using a server-based indoor navigation system (106) or via GPS. For indoor navigation, images obtained from a camera of the user device (with user permission) can be analyzed using computer vision techniques. Step-by-step directions to the store from the user’s current location (108) are determined and are provided to the user by augmenting the display of the user’s environment on the device screen, as illustrated in Fig. 1.

The techniques of this disclosure simultaneously serve the navigational needs of the user and the business needs of the advertiser. The user benefits from increased convenience and reduced time in finding an establishment of interest. The businesses benefit from greater return on advertising investment due to the potential for increased customer traffic from users that received navigational guidance directing them to the store with their permission. With user permission, the use of the navigational features described in this disclosure can be employed for measuring and analyzing the effectiveness of various aspects of advertising, such as content, placement, timing, etc.

The described techniques avoid the need to explicitly invoke a mapping application and inputting information to search and navigate. As a result, implementation of the techniques can enhance the user experience of locating and visiting a store based on the content of an advertisement encountered in a physical space. The techniques can be implemented on any device or platform that has AR capabilities.

Further to the descriptions above, a user may be provided with controls allowing the user to make an election as to both if and when systems, programs or features described herein may enable collection of user information (e.g., information about a user's social network, social actions or activities, profession, a user's preferences, or a user's current location), and if the user is sent content or communications from a server. In addition, certain data may be treated in one or more ways before it is stored or used, so that personally identifiable information is removed. For example, a user's identity may be treated so that no personally identifiable information can be determined for the user, or a user's geographic location may be generalized where location information is obtained (such as to a city, ZIP code, or state level), so that a particular location of

a user cannot be determined. Thus, the user may have control over what information is collected about the user, how that information is used, and what information is provided to the user.

## CONCLUSION

The techniques described in this disclosure enable an individual to navigate to an establishment upon encountering an advertisement for the establishment within a physical environment, such as a shopping mall. With user permission, an augmented reality (AR) capable device, such as a smartphone, is used to scan the advertisement and locate the advertiser's store closest to the user. The device is then switched to an AR navigation mode to direct the user from the current location to the location of the store.