Creating Log Files and Click Streams for Advertisements in Physical Space

Abstract

Poster advertisement has a long tradition and is transforming rapidly into digital media. In this paper we provide an overview of how sensing can be used to create online and up to date information about potential viewers. We assess what application domains can benefit from continuous monitoring of visitors. As measuring with simple sensors is inherently error prone we suggest the notion of comparative advertising power which compares the number of potential viewers in different locations. We address user acceptance and privacy concerns and show technical mechanism to increase privacy.

Bluetooth

- Number of visitors
- Time spent in vicinity
- Time profile
- ID of visitors
- Manufacturer (from MAC address)

Visual Sensors / Cameras

- Counting eyes
- Time looked at

- **Recognize people**
  - How many?
  - Male / female
  - How dressed?
- **Recognizing scenes**
  - Group / pair
  - Talking
  - Waiting
- **Recognizing objects**
  - Cars
  - Shopping bags, etc.
- **Recognizing activities**
  - Eating
  - Drinking a coffee
  - Using a mobile device

Microphones

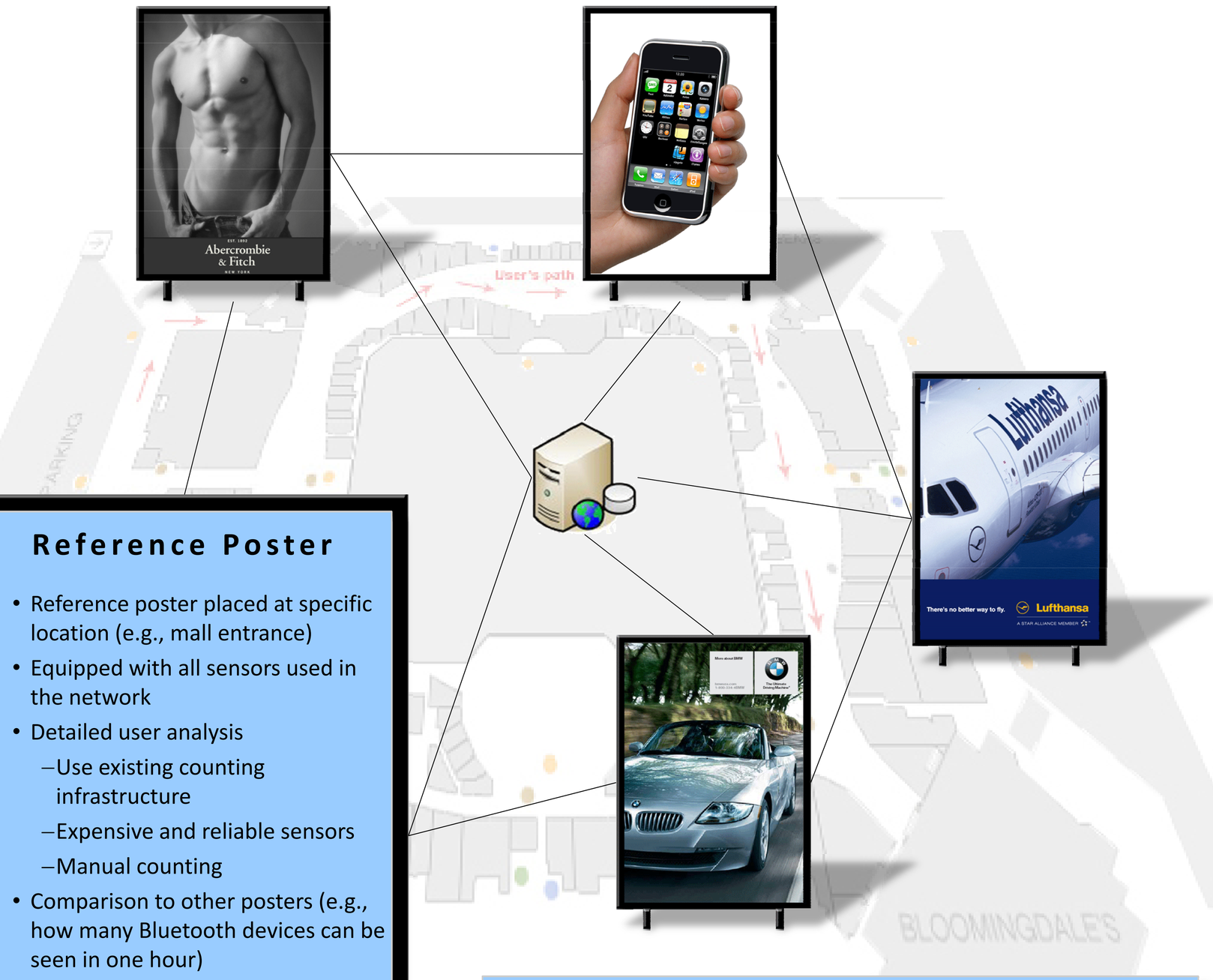
- Spot keywords
  - Explicitly (e.g., talk to poster)
  - Implicitly (e.g., show adverts based on communication)
- Assess scenes
  - Single person (silence)
  - Two persons (dialogue)
  - Group (discussion)
  - Classification of background noise

Logfiles & Clickstreams

In the web, a click stream is used to track what consecutive pages a user visits. Click stream data can serve to identify returning visitors as well as the path visitors are taking.

By using statistics from the sensor data as well as a Bluetooth MAC address, we can achieve something similar in the real world, such as **tracking the path a user takes** along different advertisements.

Hence, the **moment of change** as well as the **change frequency** of an advertising display can be optimized. Further, a campaign can be created along the **user's statistically most likely path**.



Reference Poster

- Reference poster placed at specific location (e.g., mall entrance)
- Equipped with all sensors used in the network
- Detailed user analysis
  - Use existing counting infrastructure
  - Expensive and reliable sensors
  - Manual counting
- Comparison to other posters (e.g., how many Bluetooth devices can be seen in one hour)
- Derive an estimate of how many users really passed a poster

Existing Counting Infrastructure

Manual Counting

Reliable Sensors

Related Work

Kern, D., Harding, M., Storz, O., Davis, N., and Schmidt, A. (2008): Shaping how Advertisers See Me: User Views on Implicit and Explicit Profile Capture. In CHI'08 Extended Abstracts. 3363-3368. 2008.

Müller, J. and Krüger, A. : Learning Topologies of Situated Public Displays by Observing Implicit User Interactions. In HCII'07. 158-167. 2007.

Müller, J., Paczkowski, O., and Krüger, A.: Situated Public News & Reminder Displays. In AmI-07. 2007.

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