
Project: Display Ecosystems	Document: Intelligent public/private displays for smart cities
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Intelligent public/private displays for smart cities

Project overview

In a world more and more populated of public displays and pervasive private devices, such as tablets and smartphones, the need for smarter, self-organizing ways of selecting which contents better fit the audience arises.

Modern technologies enable the software to recognize in real time the situation in which it is operating. Those contextual information can be exploited to adapt to the user needs, as the individuals act reacting to their perception of the environment.

The public displays we see in train stations, airports but also in other parts of our cities, currently show a fixed set of images and videos or information, regardless their current audience. This project aims at empowering them with the ability of perceiving who is around, understanding their preferences and goals, and show appropriate content.

The displays are able to sense who is watching them by a mix of technologies including Kinect vision, NFC readers, Bluetooth beacons, and Wifi connectivity. They can also connect to a person's smartphone and automatically download profile information. Accordingly, they can react providing the best possible content for those users. The content pool is determined by the administrator, the screens can show advertisements, information, directions and other coordinate in order to satisfy most users. In special circumstances, even a private display (a person's smartphone) can be used to provide a more effective content visualisation and interaction.

Key applications, hence, relate to mobility of pedestrians in the smart city, providing touristic information, directions into complex buildings, entertainment videos in train stations, commercial advertisements in markets. .

Project goals

This project provides ready-to-use infrastructure and applications of public/private displays, supporting a number of advanced features as studied in the context of FP7 European project SAPERE (Self-aware Pervasive Ecosystems):

- Situation recognition: provide to public displays a snapshot of what's happening around (events, clients in the proximity, etc.);
- Semantic match: given the current situation, indicate the provider which contents best fits the user needs;
- Self-* properties: the system must be able to self-configure, adapting to new, unpredicted and emergent situations, as a natural ecosystem does;
- Technology integration: using a variety of wireless technologies for fine-tuning person-to-screen interaction.

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