

# Real-World-oriented Contents Management System Mashed up with Google Street View

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**Abstract.** This article proposes a real-world oriented contents management system mashed up with Google Street View and focuses on the client system, especially its browsing usage and editing functionality are detailed. In the editing mode, the client system gives us an intuitive UI to specify the real-world objects overlapped on the street View. The augmented Street View has icon links to the various contents on the Internet and also real IT-devices to collaborate with and enhance the client system.

**Key words:** CMS, Street View, Panorama

## 1 Introduction

Recent rapid growth of smart phones such as Apple's iPhone, Google's Android phone and Windows Mobile devices together with flat-rate 3G access like HSPA has enforced us drive to a new age of mobile interactive applications. Users carrying mobile devices like smart phones would search many things concerned with the place where they are and produce live blogging contents from their place. This article proposes mobile interactive application suited for these new standard commodity technologies.

With the growth of Web2.0 technology, location-based contents like photos, map-based blog or reviews of points of interest have been gathering on the net, which can be used as collective intelligence for creating real-world-oriented recommendation and knowing collective trends in various things and events. Google Map is the most utilized site for mash up with these real life contents. Here we propose a contents management system that consists of storage server system for real-world oriented contents and a client system mashed up with Google Street View. This client system can be used as a portal site for editing, browsing and sharing consumer-generated real-world based contents in a much more intuitive and interactive way compared with map-based or PC-based mash-up site.

Our client system shows several icons overlapped with a normal view of Google Street View. These icons are clickable and linked to various contents stored in the server storage or other sites on the Internet. These links navigate

to photos, movies and any other contents like reviews and BBS. This article focuses on the client system and its UI and usage examples.

Among the similar proposals, Sekai Camera[1] is a live augmented reality system for iPhone, although it is just a concept demonstration video and not yet to be implemented because of lack of iPhone's real-time performance. Practically we don't adopt real-time AR-based approach but only give a view of user's current position from Street View. Another similar service is the Explore a place[2] button shown in the Google maps. This automatically picks up Geo-tagged contents like photos, movies and queries and puts them on the map, although users cannot put any their own links or contents.

## 2 System Design

Our proposed system uses orthodox web application suite with MySQL contents database and client system uses Google Street View API in JavaScript. In this chapter, we focus on the client system details.

### 2.1 Client System Overview

The client system is a web browser-based application, and has two modes: a browsing mode and editing mode. In the browsing mode, a current position view would appear with several clickable icons according to the position locating system like GPS. Each icon represents the link to information concerned with the spot, building or any other view on which is placed. When the user moves, the view would be updated to the current position, although the view can be pinned down. Meanwhile, the editing mode gives users chance to put a new icon link or modify their own links.

### 2.2 Editing Mode UI

In the editing mode, users can put a new icon wherever he/she like. However, putting the icon on the right place is a little tough, for the 2D view presents 3D space and position spec has latitude, longitude and height information. Our UI for editing mode shows us two interlocking panes that show the same place from the two different viewpoints. This two-pane UI would be superior to giving bird's eye view like normal map view in order to specify the exact latitude and longitude, because using Street View is just what the user is seeing and so that is much more intuitive and direct to specify the exact spot.

### 2.3 Links on Client System

There are two kinds of links the icons represent; the one is InfoLink and the other is CollabLink. Most of icons are categorized as InfoLink, which links to the contents on the net. The CollabLink is connected to the real-things (IT devices) that can collaborate with the client system. This link enables users to enhance the



Fig. 1. Client System Overview

client system with the linked device to augment various functionalities. Among the possible scenarios, a CollabLink may be connected to the public big display device that also appears in the Street View image. In this case, after clicking the CollabLink icon, the big display device can be used for displaying or replaying any view and contents in the client system. Such display can be used to leave a public BBS in collaboration with other users for exchanging information around that spot.

### 3 Demonstration Overview

We prepare mobile terminal device with GPS as a client system platform. This terminal connects to our server system through the Internet and shows the mash-up view on the Google Street View updating in the real-time way according user's movement. Users can create and put a new icon link on the view and link it to the Internet contents. We also prepare a LCD projector as a CollabLink-ed device, with which we demonstrate the client system dynamic enhancement of viewing functionality.

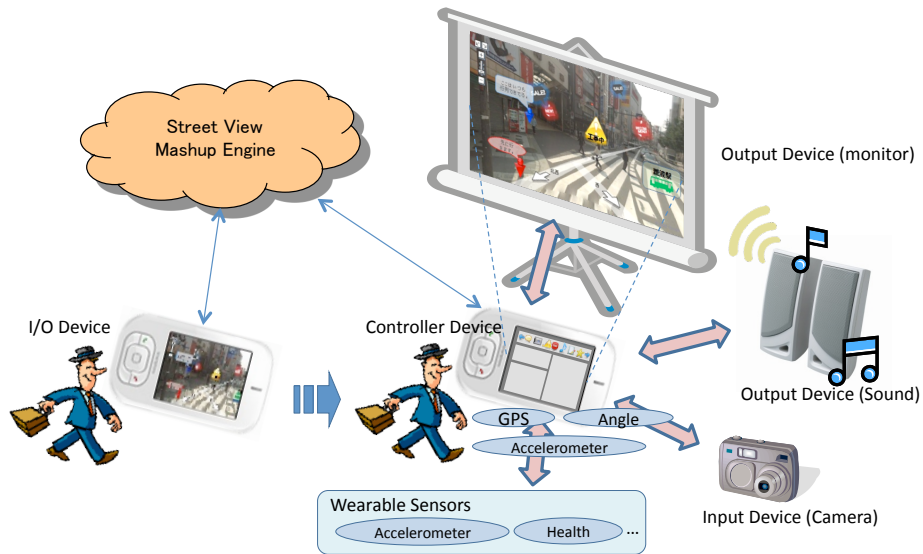


Fig. 2. CollabLink Demo Image

## 4 Conclusion

This article proposes a real-world oriented contents management system whose client system mashes up with Google Street View. This system offers us an intuitive editing functionality and overlapped on the Street View, it introduces links not only to the contents on the Internet but also to the real-world IT-devices to collaborate with. People easily speculate that Street View-like system would enlarge its coverage into the private indoor area or shopping mall in the near future and the proposed system would be dispensable for enriching Weblog or life-log environment.

## References

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