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Works in Progress

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Urban Computing and Mobile Devices

EDITOR'S INTRO

In this issue's Works in Progress department, we have 12 urban computing and mobile device entries that span a wide range of computing and social areas. The first entry examines how an urban environment could operate as a large-scale, real-time control system. One project focuses on annotating public spaces and sharing the tags with others. Two projects tie together social networking in cyberspace with local urban communities. Two projects examine computing and social interactions in physical spaces. Two entries explore how to combine synthetic and physical views of urban environments. Four entries investigate how we explore urban spaces, interact with technology in those spaces, and create shared community histories. —*Anthony D. Joseph*

WIKICITY: REAL-TIME URBAN ENVIRONMENTS

Francesco Calabrese, Kristian Kloeckl, and Carlo Ratti, *Massachusetts Institute of Technology*

Developers have created real-time control systems in various engineering applications, dramatically increasing systems' efficiency by saving energy, regulating the dynamics, and increasing robustness and disturbance tolerance. But can a city function as a real-time control system? MIT's WikiCity project aims to find out.

A real-time control system has four key components:

- an entity to be controlled in an uncertain environment,
- sensors that can acquire information about the entity's state in real time,
- intelligence that can evaluate system performance against desired outcomes, and
- physical actuators that can act on the system to realize the control strategy.

A city could fit the first two definitions. For example, the Real Time Rome project (http://senseable.mit.edu/realtimerome) uses cell phones and GPS devices to collect the movement patterns of people and transportation systems and their spatial and social use of streets and neighborhoods.

But how could we actuate the city? Although it already contains several classes of actuators, such as traffic lights and remotely updated street signs, its inhabitants are a much more flexible actuator. Consequently, we're creating a platform for storing and exchanging location- and time-sensitive data, making such data accessible to users through mobile devices, Web interfaces, and physical interface objects (see figure 1). This platform lets people become distributed intelligent actuators, pursuing individual interests in cooperation and competition with others and thus becoming prime actors in improving urban systems' efficiency.

For more information, contact Francesco Calabrese at fcalabre@mit.edu or see http://senseable.mit.edu/wikicity.

MOBILE LOCATION BOOKMARKING

Mark Bilandzic, *Ludwig-Maximilians-Universität München*

Marcus Foth, *Queensland University of Technology*

Mobile Location Bookmarking, an urban community platform, lets residents use their mobile phones to leave virtual notes at places of interest and share their experiences with other residents in real time. Using keywords, residents retrieve bookmarked locations and use them as a location-based city guide. Users can retrieve a list of annotations depending on their current position and the tags they used to describe their entries. So, searching for "tennis" might return entries about the local tennis club, a sports equipment store, or any facility that other users have tagged as such. Because all notes include their GPS position, the system can automatically generate directions.

The system leverages residents' collective intelligence to create and categorize information about any site in the city. The principle corresponds with the folksonomy paradigm of Web 2.0 applications such as Flickr (www.flickr.com) and del.icio.us (http://del.icio.us). Other location-based city services, such as Lancaster University's GUIDE project (www.guide.lancs.ac.uk/overview.html), are controlled by a single entity, making it hard to keep information up-to-date. Because our system builds on user-generated content, it implicitly responds

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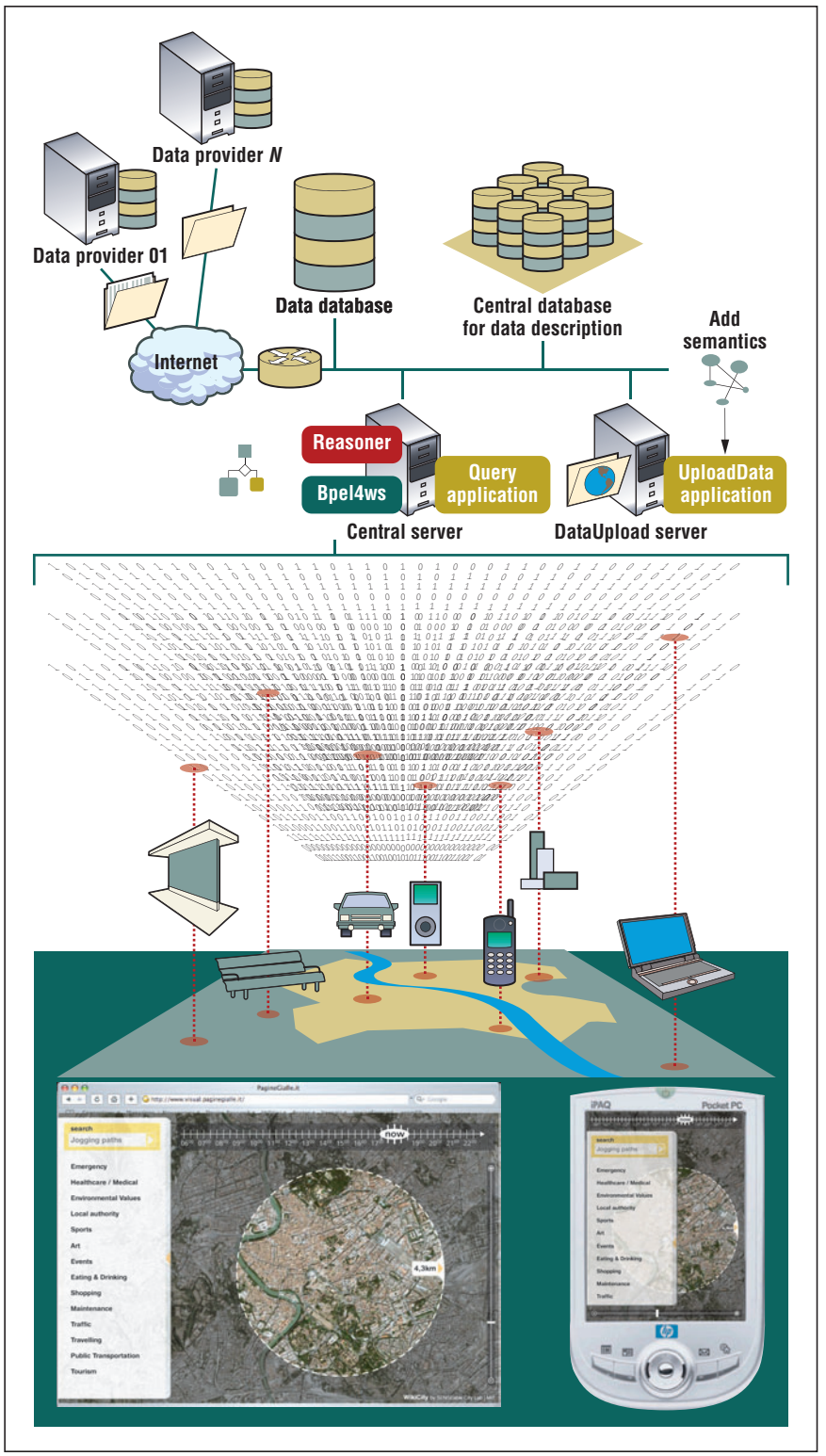

Figure 1. WikiCity explores different interface modalities that create connections between the virtual data and the actual physical world where users access these data. The system is based on a common, semantically defined format for interchange of locational data and a distributed platform that can collect and manage such data in real time.

to residents' developing interests, such as new urban hotspots or keywords.

To appropriately aggregate the large number of comments on a small mobile display, we encourage users to rate other entries for quality and usefulness. An internal ranking system ensures that users receive the most popular location bookmarks first.

For more information, contact Mark Bilandzic at markbilandzic@gmail.com or Marcus Foth at m.foth@qut.edu.au.

MYCORNR

Angela Button, *Queensland University of Technology*

MyCornr gives urban residents a personal, bounded space on the Web where they can coordinate their online information, communication, content, and entertainment. This gives users greater control over the constant influx of information and communication that typifies their digital lives. MyCornr also provides relevant, filtered local information and avenues for social networking with proximate communication partners.

MyCornr is a widgetized Web page with a communications hub that lets users access multiple communication accounts. It also provides links to and data from the user's local and global social networks, online content, and entertainment. In addition, MyCornr has a customizable information delivery service that provides access to both local and global information sources. Users can select syndicated feeds that meet their needs or design and share their own feeds with friends.

MyCornr lets users move from a safe, controlled personal space to the neighborhood space—and only then to the sometimes overwhelming global expanse of the Internet. MyCornr recognizes that humans exist as individuals, physically within a place. It values the ability to access local community social networks and information sources, thereby transforming everyday Internet use into an eminently meaningful experience.