Outline

- Define spatial computing
- Overview of problems and applications in spatial computing

It is Only a Start! Bigger Opportunities Ahead!

McKinsey Global Institute

Big data: The next frontier for innovation, competition, and productivity

The study estimates that the use of personal location data could save consumers worldwide more than $600 billion annually by 2020. Computers determine users' whereabouts by tracking their mobile devices, like cellphones. The study cites smartphone location services including Foursquare and Loopt, for locating friends, and ones for finding nearby stores and restaurants.

But the biggest single consumer benefit, the study says, is going to come from time and fuel savings from location-based services — tapping into real-time traffic and weather data — that help drivers avoid congestion and suggest alternative routes. The location tracking, McKinsey says, will work either from drivers' mobile phones or GPS systems in cars.

The New York Times

Published: May 13, 2011

New Ways to Exploit Raw Data May Bring Surge of Innovation, a Study Says

It is Widely Used by Government!

Geospatial Information and Geographic Information Systems (GIS): An Overview for Congress

May 18th, 2011

Table 1. Members of the Federal Geographic Data Committee (FGDC)

Dept. of Agriculture	Environmental Protection Agency
Dept. of Commerce	Federal Emergency Management Agency
Dept. of Defense	General Services Administration
Dept. of Energy	Library of Congress
Dept. of Health and Human Services	National Aeronautics and Space Administration
Dept. of Housing and Urban Development	National Archives and Records Administration
Dept. of the Interior (Chair)	National Science Foundation
Dept. of Justice	Tennessee Valley Authority
Dept. of State	
Dept. of Transportation	Office of Management and Budget (Co-Chair)

Folger, Peter. Geospatial Information and Geographic Information Systems (GIS): Current Issues and Future Challenges. Congressional Research Service. June 8th, 2009.

Evolution of Spatial Computing

- Transformed our lives though understanding spaces and places
  - Examples: localization, navigation, site selection, mapping,
  - Examples: spatial context, situation assessment (distribution, patterns), …

Changing World of Spatial Computing

	Last Century	This Decade
Map User	Well-trained few	Billions
Mappers	Well-trained few	Billions
Software, Hardware	Few layers, e.g., Applications: Arc/GIS, Databases: SQL3/OGIS	All layers
User Expectations & Risks	Modest	Growing fast

It is Only a Start! Bigger Opportunities Ahead! - Continued

Computing Community Consortium

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Disaster Management · SEES IT · HealthIT · Interactive Tech · Architecture · XLayer · Robotics · Learning Tech · Open Source · Cyber Physical Systems · Global Development · Theoretical CS · Big Data Computing · NetSE · Spatial Computing

From GPS and Virtual Globes to Spatial Computing-2020

About the workshop

This workshop outlines an effort to develop and promote a unified agenda for Spatial Computing research and development across US agencies, industries, and universities. See the original workshop proposal here.

Spatial Computing

Spatial Computing is a set of ideas and technologies that will transform our lives by understanding the physical world, knowing and communicating our relation to places in that world, and navigating through those places.

The transformational potential of Spatial Computing is already evident. From Virtual Globes such as Google Maps and Microsoft Bing Maps to consumer GPS devices, our society has benefitted immensely from spatial technology. We've reached the point where a hiker in Yellowstone, a schoolgirl in DC, a biker in Minneapolis, and a taxi driver in Manhattan know precisely where they are, nearby points of interest, and how to reach their destinations. Large

Logistics

Date: Sept. 10th-11th, 2012
Location: Keck Center
Hotel: Liaison Hotel

Steering Committee

Erwin Gianchandani

Hank Korth

Organizing Committee

Peggy Agouris, George Mason University

Walid Aref, Purdue University

Michael F. Goodchild, University of California - Santa Barbara