iCampus: A Geospatial Social Networking Web-Portal for the USC Community

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Outline

• Overview of iCampus
• Current Status
• System and App Demo
• Next Steps and Conclusion
Overview: Motivation

Proof of Concept Implementation of Geo-Immersion

*(Intelligent Campus* as a Use Case)*

Geospatial Social Networking Portal for the USC Community

iCampus.USC Project

In development as an internal project since Summer 2010
Overview: Approach

Good:
- Flexible Service for Common and Individual Needs
- Reliable, Very Good Quality Information for Community
- Fast and Customized Service Development

Not Good:
- Limited Usage for Community Members

AND, we know ourselves very well!
(land/map, data, people, interests)
Overview: Uniqueness

1. Datasets and Users
   - Public and Private USC data
   - Participatory data by USC users: pictures, videos, texts, locations
3. Testbed for research/service, showcase for industry products

Collaborative
Participatory
Hyperlocal
Geo-Social
Integration!
Overview: Architecture

Open System for USC Community (Service, R&D)

Applications
Provided/Owned by Community Members

by the people of the people

Presentation Layer

Application Layer

Data Access Layer

DB

IMSC owned Databases

Open API Provided by IMSC

for the people

Open API Provided by IMSC
Current Status

• Focused on “Reliable Implementation” which can be used by real USC community members

• Two platforms
  – iCampus Web Portal: emphasis on integration with data management
  – iCampus Mobile: emphasis on mobility with personalization – Android and iOS

• Use case of iCampus for research testbed: Geovid
  – prototype for mobile video management
iCampus Desktop Demo

• iCampus server with local Databases and Web services
• Multi-purpose GUI for diverse apps
• Support integrated services requiring high processing power or high bandwidth
iCampus Mobile Demo

- Location-based services
- Tightly coupled personalized services (using Facebook)
- Intuitive and easy user interface
- Educational platform for mobile programming
- Details can be found in poster
Mobile Programming Project Demo

- **Trojan Explorer**: Walk around campus to know simple facts about USC while playing games and answering quizzes
- Teach core Android mobile programming skills for undergraduate students
- Details can be found in Poster
Geovid Demo

- **Use case** of iCampus to support comprehensive research prototype
  - jointly developed by USC IMSC and NUS
- Focus on geo-tagged mobile video collection and management
- Consist of:
  - Mobile video recording app which can capture sensor data
  - Server to store videos files and their geospatial meta data
  - Web service to support spatiotemporal queries for videos
Geovid Concept

GPS \rightarrow \text{Latitude/Longitude}

Compass \rightarrow \text{Direction}

FOV (Field of View)

Location (lat/lon)

Visible distance

Direction

\text{FOVScene} description is generated every \( f \) frames
Collaboration

• USC
  – Research: iWatch, Geovid, Ambience Data (Civil Eng.)
  – Education: regular (CS grad)
• Outside
  – Research:
    • Geovid design and implementation (NUS, Singapore)
    • Smart living environment (NCKU, Taiwan)
  – Education:
    • Certificate Program (NSU, Korea)
    • Mobile video server for experimental media coverage of 2012 NATO Summit (Columbia College at Chicago)
Experimental Use Case 1

- Media coverage platform for NATO Summit
- Chicago in May 2012
- Joint work with Columbia College at Chicago
- 40 journalism students (+ other student volunteers) will cover the streets in Chicago during the event using smartphones and Geovid
Media Coverage by the Public
Experimental Use Case 2

• Provide educational platform for mobile program development and test
  – Release open API
  – Share data and system for testing

• Outcomes can be used for USC community
  – Tour guide of USC campus
  – Navigating USC Campus
  – Parking, class schedule, etc.
Conclusion

• Lessons learned:
  – Reliable system development for actual service is challenging
  – Fund raising for a general testbed and web portal for actual service is challenging

• iCampus for:
  – Education
  – Internal & external tech-transfer
  – Testbed