iCampus Mobile

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ICampus ✓   IWatch   CT

Introduction

▪ **Motivation:** the popularity of smart phones, and availability of data allow us to create an application that provide students with useful services, and allow them to share their experience

▪ Integrate various types of data, including public data (Google Map, Facebook, Twitter), user data (picture, location), USC's private data (event, alert)

▪ Uses the four dimensions of "what, when, where and who", and allow USC community members to easily add their own apps

Motivation

▪ **Geo-Immersion**
   + Blends the real world and geo-realistic virtual world
   + Enable immersive data access, querying and analysis
   + Provide advanced solutions for existing applications, as well as novel solutions for new applications

IMSC's Current Vision: Geo-Immersion
Geo-Realistic Virtualization of Urban Environments
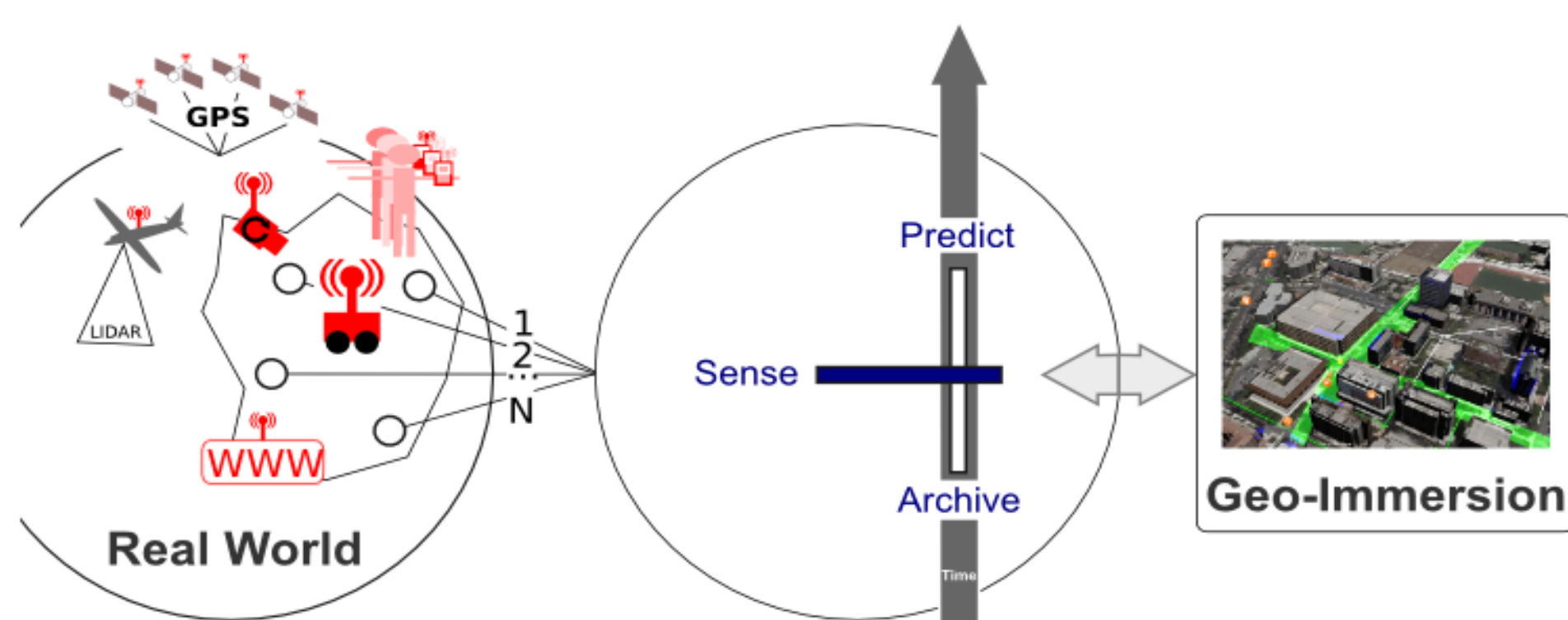

▪ **iCampus desktop extension**
   + Convenient: information at your fingertips
   + Faster communication: stay connected
   + Location-based services: context awareness

System Architecture

▪ Geo-social mobile technologies
▪ Standard three-tiers application
▪ Desktop browsers and mobile interfaces (Android, iPhone)
▪ Participatory sensing (user data collection)

Client — Android phone / Computer

Internet

Application Server — Common Services | iCampus Mobile Services | iCampus Desktop Services — Java EE, Servlet, Struts, Hibernate Apache Tomcat 6

Internet

Database Server — Oracle DB 11g EE

User (uid, user_name,…)
Application (aid, app_name,…)
Preference (pid, uid, appid,…)
Post (pid, uid, link,…)
Event (eid, aid, title,…)
…

Capability
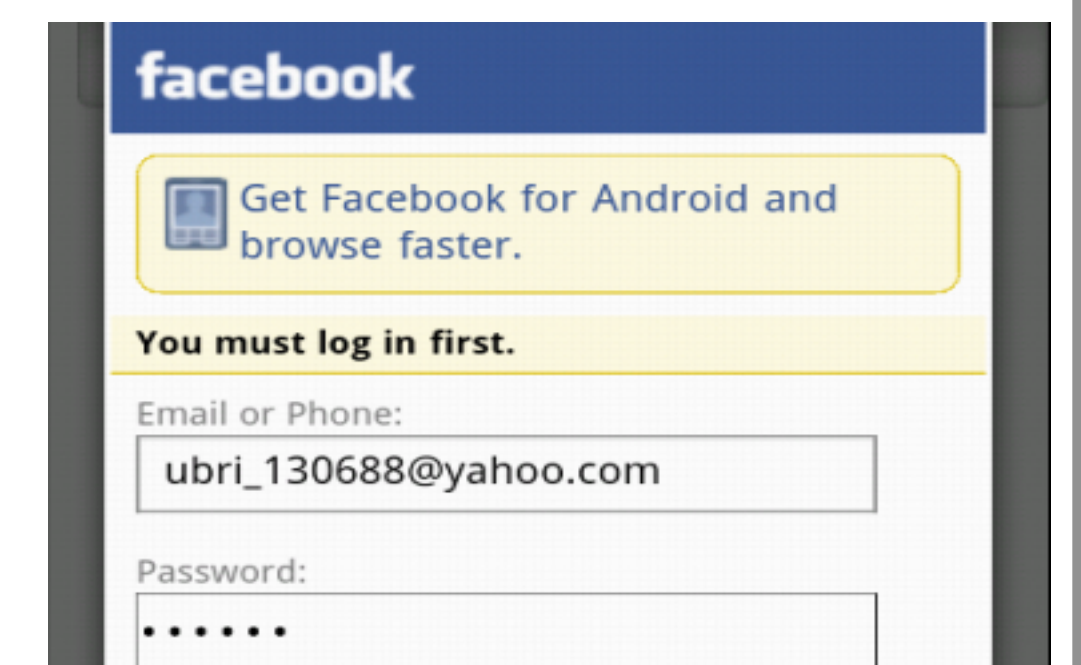
▪ **Rich data integration**
   + Public data, user data, and USC's private data
   + Multiple layers of objects on map: buildings, trams, food images, etc

▪ **Intelligent location-based services**
   + Location context awareness
   + Location search and navigation
   + Nearby, most recent queries, etc
   + Real-time monitoring and report
   + Real-time trajectory tracking
   + GPS error resilience
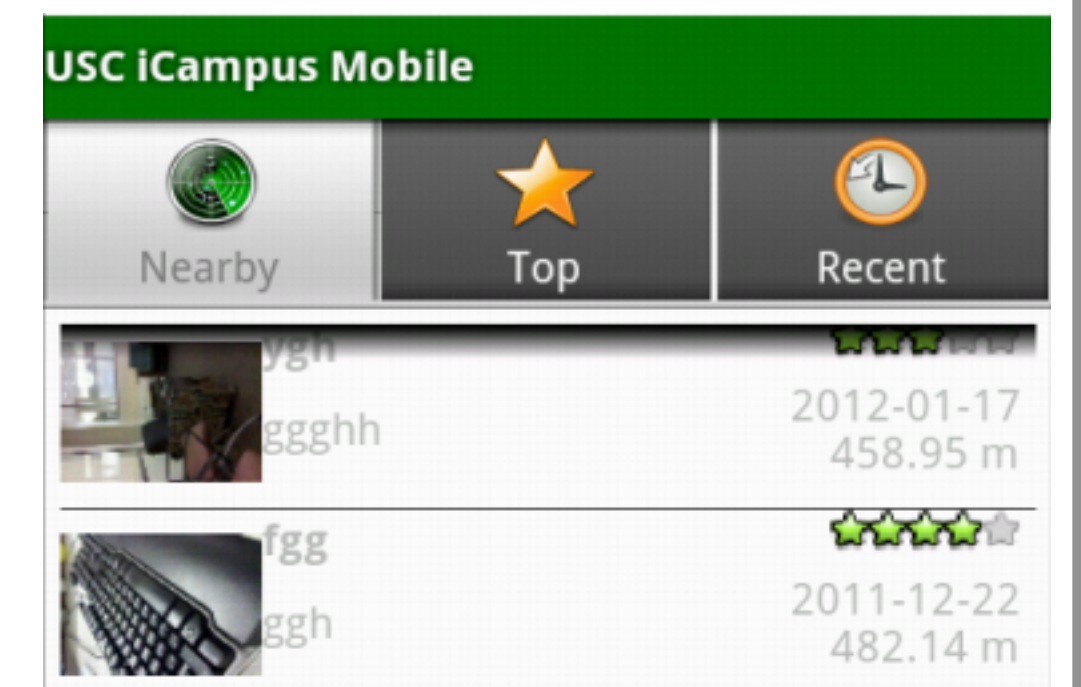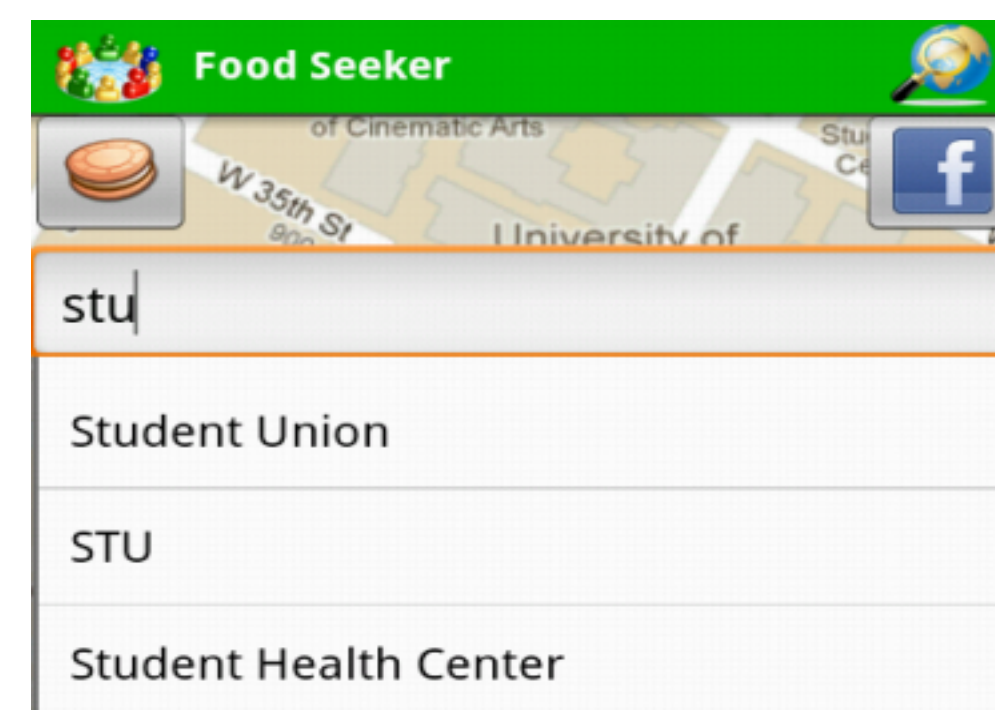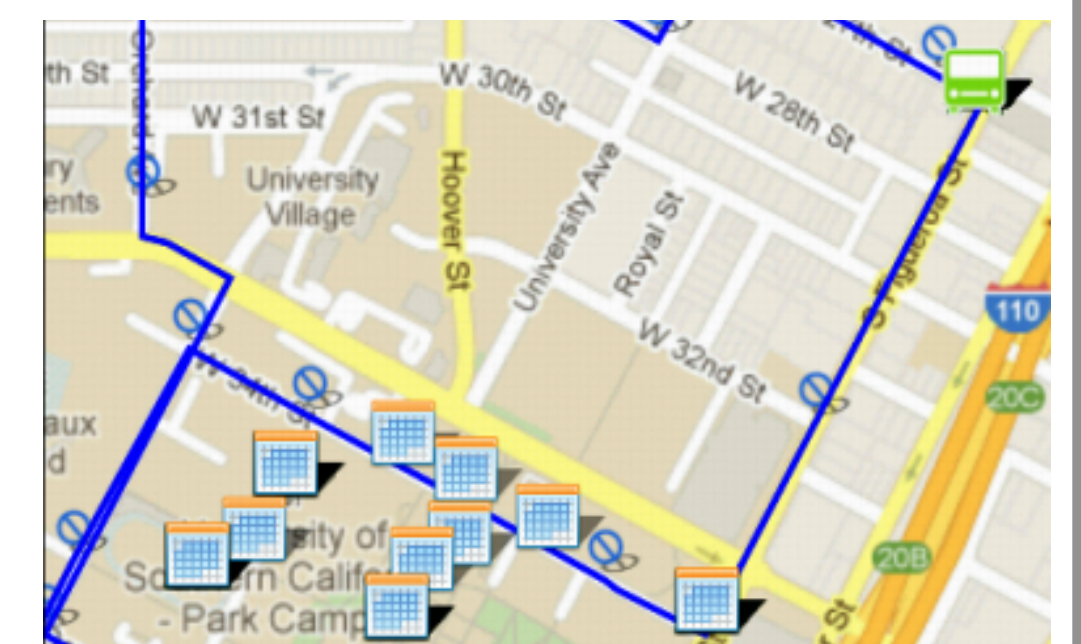
▪ **Personalized and customized services**
   + Tram routes: route A, route B, route C, Parking Center
   + Event categories: music, art, technology, etc
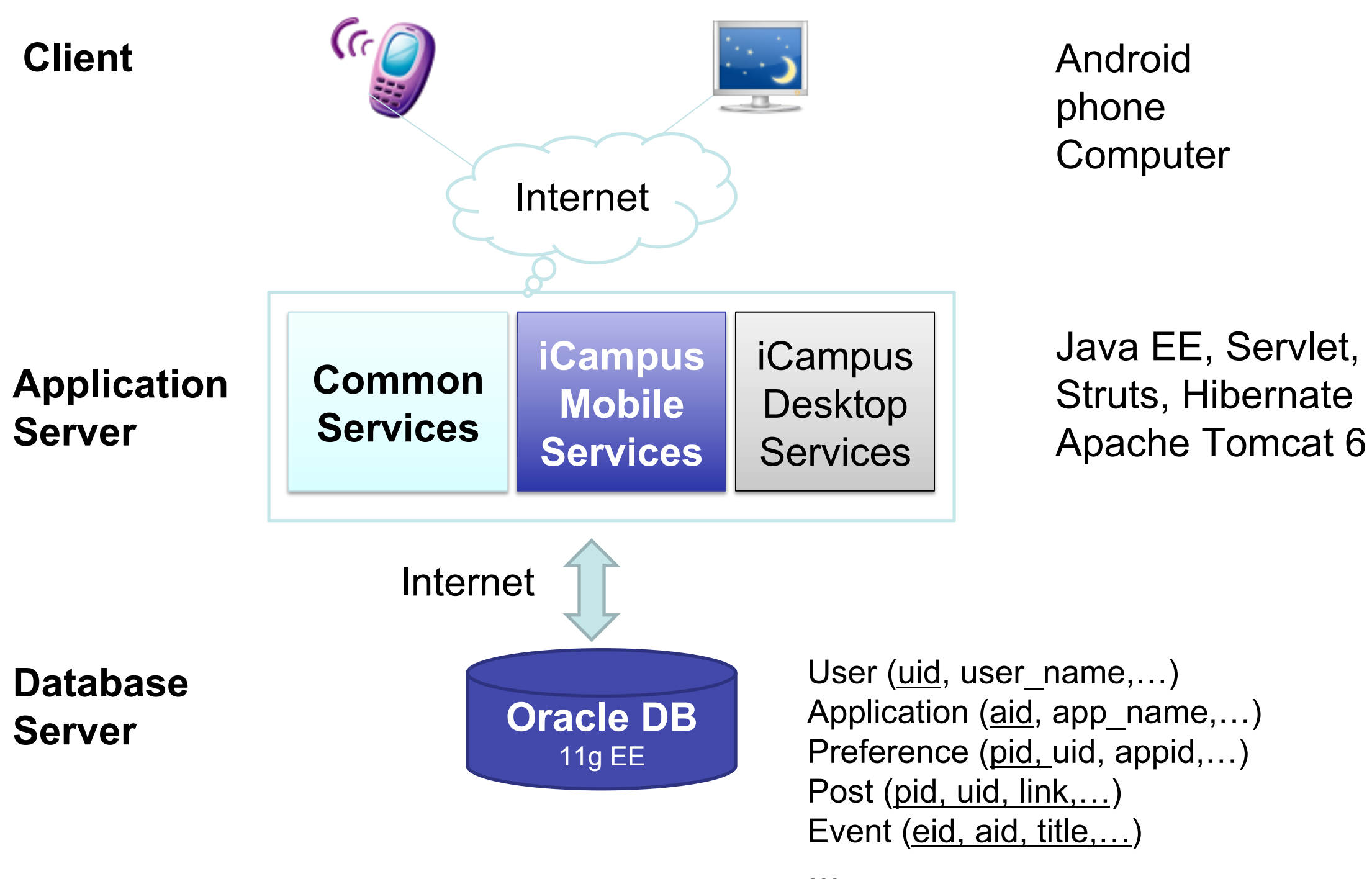   + GUI parameters configuration
   + Trajectory enable/disable
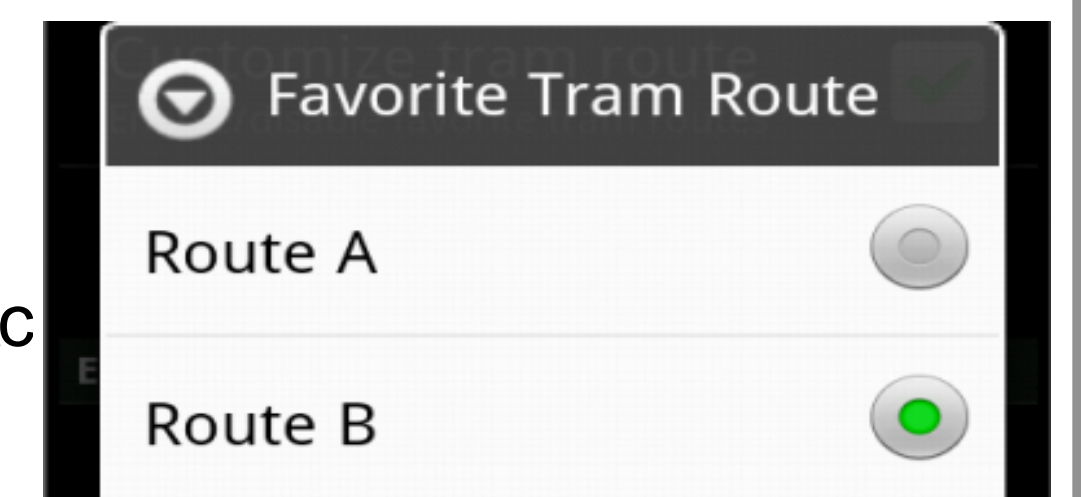
▪ **Social network integration**
   + Facebook signup for authorization
   + Facebook feed & message

Related Research

▪ Participatory sensing/privacy: users share their image, location, trajectory
▪ Trajectory pattern mining from users' history location
▪ Real-time data streaming/query/integration: database, performance
▪ Mobile geo-social technologies/applications

Conclusion and Future Work

▪ Collect more data such as user generated videos, Twitter/Facebook messages about USC

▪ Develop more features of geo-social apps, including check in/out