Shibuya Star

A prototype submission for the IMS Research Competition
Category: Young Adult/Teens

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What is Shibuya Star?

- **in situ → for mobile device (PDA)**
- **satellite view of places on Earth**
- **allows:**
  - coordinating spontaneous action & collaboration
  - location-centric messaging
  - historic messaging (~forum on web)
  - real-time messaging (~IM on web)
- **teens & young adults (age 12-26)**
Motivation

- Howard Rheingold: “Smart Mobs: The Next Social Revolution”
- Shibuya represents:
  - being hip
  - i-mode generation
  - meeting place
Agora

- forum + IM + location + mobility = agora
- “a place of congregation, especially an ancient Greek marketplace” (αγορά)
- a user-defined region of the physical space,
- that serves as a virtual place for discussion
How to use agora? (Level 1)

- source of information about a place
- simply read the messages posted by the general community in the past
  - find a hidden store
  - learn about the history of a monument
  - get others’ opinion of a restaurant
  - get discount coupons
  - geocaching
- similar to web forum
How to use agoras? (Level 2)

- coordinate physical action via instantaneous in-situ messaging
  - a group of girls and a group of boys arranges to see a movie together while in a mall
  - share details of a potential bulk purchase deal with others nearby (spontaneous team buying/tuangou)
  - two backpacking American couples find each other in Xi’an, China and share their adventures and travel tips over a drink
  - emergency coordination: firefighters; severe weather; ongoing incident

- creates new small groups in the real world
How to use agoras? (Level 3)

- coordinate recurring physical interaction, using historic usage info
  - notification of new political rally
  - inviting friends from last day’s grill party
  - reconnect with random encounters (met on holiday; missed encounter)
  - receive coupon based on past activity with significant pattern

- location privacy ensured: others’ history is not accessible
Navigation view
Repositioning
Talk in agora

- Center here
- Zoom in here
- Create agora...
- Join agora...
- Cancel

- List of agoras
  - Local shopping coupons
  - Downtown coffee drinkers

- Agora talk
  - Downtown coffee drinkers
  - enter message here
  - Jake> anybody intrstd in Cofbeanie Shop?
  - Jane> just heading there...
Create agora
Network architecture

PDA (with GPS)

WiFi

SIP

CSCF

MPM

Ubiquity SIP A/S with SOOF Appcelerator (agora business logic)

GTLoc whereami (wifi positioning)

Microsoft TerraServer (satellite imagery)

Microsoft MapPoint (reverse geocoding)
Server-side technologies

- Development tool
  - Eclipse (Java)

- Server & networking
  - Ubiquity A/S with SOOF Appceleratorator
    - ISC on :5090
    - Foundation Element Block (FEB) + Service Logic Block (SLB) for SIP
    - Business Logic Block (BLB) for SOAP
  - Siemens Network Emulator (NE)
    - ISC on :15090
SIP/SOAP messaging

<?xml version='1.0' encoding='UTF-8'?>
<AgoraMessaging>
  <type>createAgora</type>
  <center>
    <zone>{0}</zone>
    <x>{1}</x>
    <y>{2}</y>
  </center>
  <radius>{3}</radius>
  <description>{4}</description>
</AgoraMessaging>
Messages

- **TO server:**
  - `createAgora(UTMPoint center, double radius, String description)`
  - `joinAgora(int agoraID, String userName)`
  - `exitAgora(int agoraID)`
  - `getAgoras(UTMPoint upperLeft, UTMPoint lowerRight)`
  - `postMessage(int agoraID, String message)`

- **FROM server:**
  - `sendMessageArrived(String message)`
  - `sendAgoraCreated(int agoraID)`
  - `sendAgoraList(ArrayList agoras)`
Client-side technologies

- Development tool
  - Visual Studio .NET 2005 Professional (C#)

- Device
  - HP iPaq 6945 PDA
  - emulator with Windows Mobile 2003

- Other
  - .NET Compact Framework 2.0
  - Siemens IMS WIN.NET SDK
  - GeoFrameworks GPS.NET 2.0
  - ASP.NET
TerraServer satellite imagery

- accessible as 200 by 200 pixel image tiles
- MRU (Most Recently Used) caching on PDA
image tiles identified by UTM coordinates
Business model

- free introductory period (6-9 months)
- usage-based
  - free to view → enticing to start interaction
  - 5 cents to post → perception: “virtually free”
- pre-paid bulk (eg. $5 for 300 posts)

- context based relevant ads (à la Google)
  - accumulating rich context database:
    users + locations + text messages
Future work

- **Functionality:**
  - push-to-talk live spoken chat
  - filtering/search
    - number of messages in last hour/day/week/all time
    - presence of keywords in messages/agora title
  - switch to private channel

- **Performance:**
  - predictive tile caching
  - HA (High Availability)
Thank you!