Mobile Imaging

21W.780 – Class 5
March 13, 2007
Frank Bentley

Image from Vizster

Overview

Mobile Imaging overview

MIT Cell Phone Photography Contest
- **Guest speaker Jon Markowitz Bijur**

Mobile Photo Sharing with Radar
- **Guest speaker Maia Garau**

Photo Organization with Contextual Metadata

Discuss last week's assignment

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Mobile Imaging

29 billion mobile images captured/year

Cell phone cameras up to 7mp

Cell phones are "always" connected devices

Storage up to 2GB and growing quickly

Research areas:

- **Photo Sharing**

- **Photo Organization**

- **Camera phone usage (differences from traditional photography)**
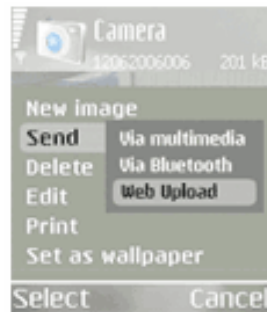
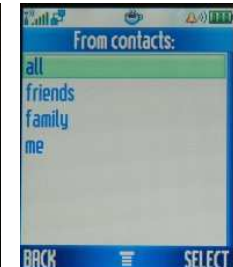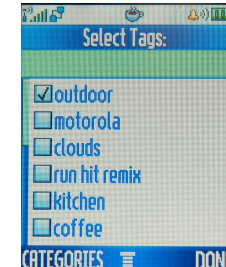MOTOROLA

Current mobile photo applications

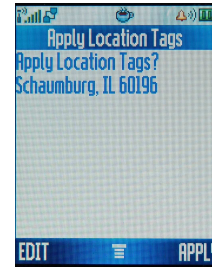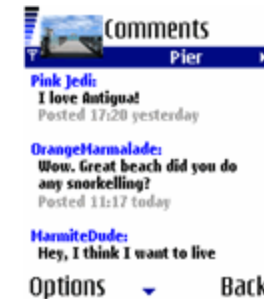**Shozu**

ZoneTag

Radar

Nokia Flickr uploader

SplashBlog

More every day…

Mobile Photo Guidelines…

Think uniquely mobile, not mini-PC

Think always with you, not just on-the-go

Think building and reinforcing common ground and identity

Think access to what's essential, not just browsing

- **Mirjana Spasojevic (Nokia Research Center, Palo Alto) and Rachel Hinman (Adaptive Path) http://research.nokia.com/people/mirjana_spasojevic/MobilePersuasionFinal.pdf**

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Mobile Photo Usage…

Distant Closeness: knowing about others, keeping others informed about oneself, without direct interaction

- **Nancy VanHouse (Berkeley)**

Mobile photos taken for: Memory, Relationship Creation and Maintenance, Self-Presentation, Self-Expression, Functional, Social Documentary

- Nancy VanHouse (Berkeley) and Marc Davis (Yahoo!)

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Guest Speaker

MIT Cell Phone Photography Contest
Jon Markowitz Bijur

Guest Speaker

Mobile Photo Sharing with Radar
Maia Garau

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Photo Organization - Motivation

It's not always the last image you took that you want to access

- Reminiscing
- Sharing past experiences with others in person
- Getting information about a place where you were
- Etc…

Photo Organization – Motivation (2)

Average cameraphone image ~100K

Smartphone Storage ~2GB

20,000 images!

Every photo you've ever taken and then some…

But how can you find them when you need them?

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Contextual Metadata

Capture as much about the photo as we possibly can…

- When it was taken

- Where it was taken

- Who was around when it was taken

- What happened to the photo after it was taken (sent to, received from, etc.)

- What is in the picture

Our primary research and other secondary research has shown that these are the pieces of information people most often remember

Metadata Services Engine

Phone database to manage all content and related metadata

Flexible queries based on any boolean combination of attribute/value pairs: e.g. pictures in boston from 1999 or 2000

Annotate as much as we can automatically (e.g. time and place)

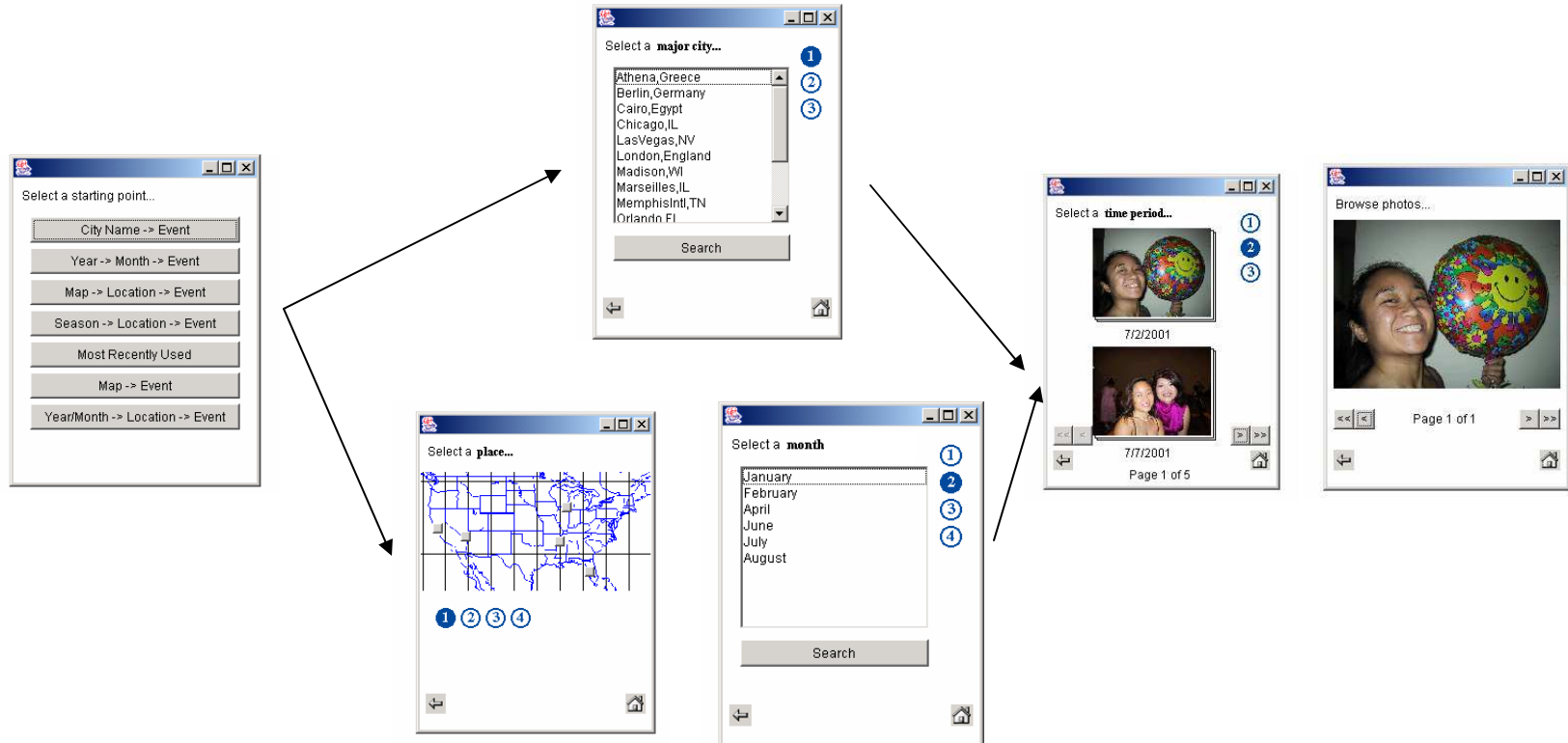Get user help with the rest (if desired) (e.g. what's in the picture)

Use Cases…

Search for a specific photo

Browse Photos/Reminisce

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How to interact with this database?

iPod like interaction?

Motorola General Business Information, 21W780Class5.ppt, 1.0
For MIT Class 21W.780 Spring 2007.

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Lab Studies

Three rapid studies on photo search (1-2 weeks each for implementation, execution, and analysis)

Conducted in the summer of 2003

Study 1: Time-based event clusterings

Study 2: Location-based navigations

Study 3: Guided paths with combinations of time and location

Used participant's own photo collection (2-3 years of digital photographs)

Automatically annotated time from EXIF data, manually annotated location from initial interviews

Major Findings

Users frequently are unsure about exact values for contextual metadata. Browsing experiences should allow users to easily view "nearby" media in time and space.

While searching, users often remembered additional information about the photo they were searching for. Browsing experiences need to allow users to easily change/add search criteria

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Redesign

Allow users to modify queries mid-stream

Allow users to define paths as they go

Original choice of attributes

Viewing 14 events from Boston, MA.

Choosing images from 2001

Viewing 8 events from Boston, MA in 2001.

Final Observations…

Flexibility, Open search paths important

Time and Location metadata often all you need to find photos

Searching for something specific often evolves into browsing

Couldn't have done this without user research/usability analysis

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Next Steps…

Discuss last week's assignment/share cell id information

Due next week:

1) Build a phone application that captures an image and then does "something" with it

2) Readings on user-centered research and design

Next week will be an interactive class to prepare you for designing your user interfaces. We'll be doing task analysis and functional requirements as well as working on user interaction flows.

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