LetsPic: Supporting In-situ Collaborative Photography over a Large Physical Space

Auk Kim
Sungjoon Kim
Uichin Lee
A collocated environment is ideal for group activities
Group members are in close proximity
Collocated group activities over a large physical space like:

- site survey
- field trip
- citizen science
- community policing
- group tour
- collaborative photography
- group travel
In a large physical space, group interactions may include a mixture of collocated and remote interactions, because of mobility and group dynamics.
We define
• this environment as the ‘activity space’ that bounds group activities.
• ‘Activity-space awareness’ as the up-to-date knowledge of group members’ activity, location, and interaction in an activity space.
Unique design opportunities to support activity-space awareness for collaborative group over a large physical space
Various group activities/works taking over a large physical space like:

- site survey
- field trip
- citizen science
- community policing
- A/R games
- group tour
- group travel

In our study, we focus on collaborative photography
Collaborative photography is a type of photography that involves a group of people taking photo together typically for shared goals.
Various application domains of collaborative photography

Collaborative photography in work context
• Collaborative site surveys (e.g., site reviews, construction sites, and natural habitat monitoring)
• Field trips (e.g., botanical gardens, zoos, and historical sites)
• Image-based research methodologies (e.g., geography, archaeology, and anthropology)

Collaborative photography in social context
• Group travel (e.g., theme park visits) and leisure/sports activities (e.g., outdoor festivals, marathons)
• Group photography tours and workshops (e.g., a visit by a camera club to scenic sites)
Main goal of our study:
How to build a system capable of supporting in-situ collaborative photography in an activity space
Procedure of our study

Formative study

- To understand group behavior, concerns, and problems in collaborative photography over activity space

Iteratively designing and developing LetsPic

- Designing
- Testing with users
- Prototyping

Case study with LetsPic
Formative study: Understanding of collaborative photography in activity space

Participants

• 17 people (4 groups of four to five members; 10 females and 7 males)

Procedure

* Site survey: collecting photos for introductory pages of three places in campus
Finding 1: Collaborative photography in activity space

1: Assigning photo spots

Collocated interaction

2: Taking photographs at the assigned spots

Sub-group

Remoted interactions

3: Reviewing photos

Collocated interaction
Finding 2: Messenger as photoware, but it’s interruptive and frustrated.

- Group messenger for sharing photos, checking progress/location, and discussing photos
- The messenger was only used often in the beginning, and was rarely used subsequently
Finding 3: Evidences showing importance of activity-space awareness

- Often revisited the same place
- Captured redundant photos
- Being not aware of other members’ behavior
LetsPic, a photoware supporting activity-space awareness

- The key design concept is to empower users with activity-space awareness to facilitate collaborative photography.
Gallery mode provides detailed activity-space awareness (e.g., overall group progress).

Location of each photo as a colored marker to help users maintain activity-space awareness.

Gallery mode as an initial landing page.

Galley Mode

Camera mode
Camera mode allows users to take photos while providing simplified activity-space awareness.

Quick galley view

Radar view

Displaying recent photos taken by group members.
Case Study: Site survey - experience of LetsPic in work context (higher level of collaboration than case study 2, social context)

Participants:
• 31 people (12 groups of two to four members; 15 males and 9 females)

Procedure:
* Site survey: collecting photos for introductory pages of two places in campus
LetsPic increased users’ awareness and was used intuitively in the way of activity-space awareness benefits users.

E.g., PA4 said “I used the gallery mode when I needed to check overall work progress [...] While taking photos, I used the radar view to check what others (collaborators) were doing if I needed to [...] To see recent activity of group members, I used the quick gallery view.”
LetsPic provided new opportunistic collaborative experiences

• An opportunity to capture unique photos by helping the participants navigate in the direction where members had not captured any photo yet.

• An opportunity to iteratively improve the quality of each photo in the groups’ photo collections.

• An opportunity to improve the diversity in groups’ photo collections.
Conclusion

• Unlike to the traditional collocated environment, mobile-collocated interactions in a large physical space (activity space) includes a mixture of both collocated and remote interaction.

• In activity space, mobility of group members and group dynamic make maintenance of awareness very challenging.

• Thus, awareness must be supported for group activities over a activity space.
Thank You! Questions?

- Introduction of unique design space
- Characterization of activity-space awareness
  - Hierarchy in awareness
  - Benefits of awareness
- LetsPic supporting two level of activity space awareness

LetsPic: Supporting In-situ Collaborative Photography over a Large Physical Space