Sharing Life Experiences with Friends Based on Individual's Locality

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Abstract. There are numerous events that transpire in one's life. Since, the need to make the most of these life logs is the ultimate goal of life logging; therefore, we present an approach to share one's life experiences with friends. The proposed mechanism assists one's friends who are involved in identical situations with shared life logs, provided that they check-in the same location where the logs were originally produced. A user of the system can capture and share images, audio recordings, QR-code or barcode as well as real objects via the prototype life log device. The friends in response can send feedback about the shared data to support the sharer of the log. The prototype application is developed on an Android-based smart phone that works as a life log device and employs Facebook and Dropbox API for fetching one's friends list and storing life log data in the cloud respectively.

1   Introduction

Life logging is a ubiquitous activity which facilitates in capturing day to day events. Some of these life trails are worthy to be shared among known friends, benefiting both parties, the one who shares as well as those viewing the shared logs. Most of research in the past focused on capturing useful information to be labeled as one's life log [1] and proposed models [2], [3] for sharing life log, but less attention is bestowed upon how to select the people who may appreciate or utilize this huge data reserve. With the recent advancement in the technology, two life log devices common today are SenseCam [4] and Memoto [5]. These devices capture events in the form of images with location and time stamp offering front end software to relive the past events.

As life log collection is huge and it is difficult to identify the target audience who may find this information useful or guide the owner of the log in certain circumstances, therefore we came up with an approach in which sharer doesn't pick friends with whom the life log has to be shared, but instead, only with those who check in at that place where the sharer previously generated the data/ log. We developed a prototype device to capture life logs in the form of images, audio. In addition, we employ Moodstocks API [6] to read QR-code, barcode as well as identify objects that are previously stored in the database. Every place has certain

characteristics such as, a super store is a place to buy grocery and other house hold items, and therefore, sharing super store life logs with a family member who visits that store in future may indicate them about what else to buy from the store. We believe that life log sharing based on locality may automate the process as to whom one's life log would be viewable. Our research goal is to prohibit entire log sharing with friends and keep them from going through extraneous infor-mation. In addition, we make the log visible to only those friends who visit the location where life log was generated, thus, eliminating any chance of sharing contents of life log that may be inappropriate or not useful for some friends. Furthermore, the viewers of the log may also support the owner in the form of comments or remarks.

2   Life Log Sharing Framework

The proposed life log sharing framework elucidates the way significant life logs are made visible to one's friends. The framework shown in figure 1 assists a user to develop the sharing strategy on their respective life log devices. The life log device is made proficient in valuing the owner's sharing preference for those log entries produced at a locality, which later on, have to be shared with those friends who arrive at the same location. In order to define a sharing strategy, the life log device user has to select one of the three options to declare the scope of visibility of their life log, which are, explicit city, particular street or location independent. 'Explicit city' shared logs are visible to the friends belonging to the same city or those who visit that city. This scope may be useful to share sightseeing spots or social events of the city. The log shared with 'Particular street' scope is visible to only those friends who check in that street. This type of log may help to explore more about specific places such as restaurants, markets, stadiums or leisure places. 'Location independent' share will broadcast the log with all the friends irrespective of their locations.
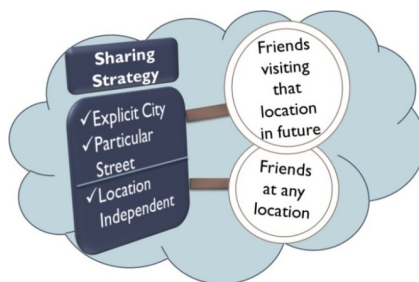

Fig. 1. Life log sharing Framework

The framework attempts to shrink the number of friends who may uncover one's life log, in addition, provide valuable logs associated with the present location of friends.

2.1   Suitable Scenarios

Scenario 1. A person visited Tokyo city for attending a conference and was delighted to see life logs of two friends who had been there in past. One of the friends shared favorite sightseeing spots and night clubs on city level, thus, the visitor enjoyed his spare time visiting few of those places. While on the way, he checked in at 'Odaiba' (a sightseeing place) and found some dining logs of a restaurant shared by his friend at street level, persuaded him to go to the same restaurant. The shared logs of friends facilitated him beyond doubt during his short stay in Tokyo.

Scenario 2. A high school student went for camping with colleagues to a tropical forest. During his stay, he interacted with a variety of things, such as, sleeping bag, flashlight, cooking utensils, First Aid kit, etc, therefore, he thought to log and share his experience with friends regardless of their location by selecting 'location independent' option. One of his friends living in another state found this information very useful which aided in preparing his bag pack for a camping trip.

3   Life Log Sharing System

3.1   Life Log Device Prototype

We programmed an android based smart phone(Nexus S) to capture images and audio clips, whereas, Moodstocks API is applied to read barcodes, QR-codes as well as identify objects. For object recognition we need to previously store their templates at Moodstocks server. All life logs are stored on the dropbox cloud [7] and their shared links are acquired for future access. Figure 2(a) shows the way life log device is worn with the help of a neck strap and some generated logs by this prototype device. In figure 2(b), we explain the technique of operating Moodstocks API to obtain contextual information of scanned objects and scenes.
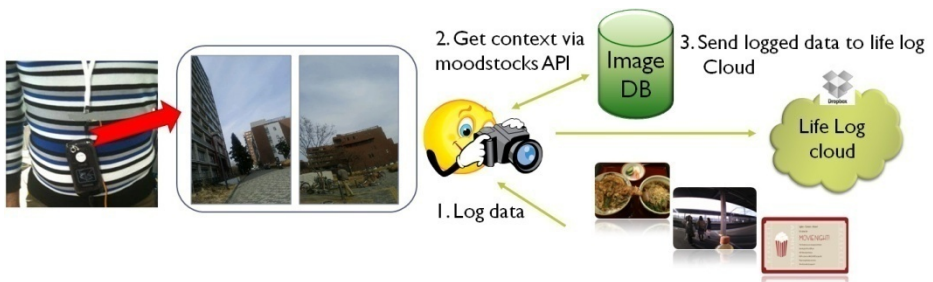

Fig. 2. (a) Prototype device (left)   (b) Acquiring contextual information of an object (right)

3.2   Specification of Sharing Strategy

While the smart phone's camera and microphone snap pictures and record audio details respectively, the logs are uploaded to the life log cloud. Subsequently, the

current location is determined when user checks-in via Facebook API [8], whereas, the scope of the log visibility is requested from the user. The log can be made available to all the friends in the same city by selecting 'Explicit city' share or when user's friends visit that particular street where the log was generated with 'Particular street' share or with all friends regardless of their present location. Finally, the shared link of that log along with location restrictions is sent to a server. We built this server to receive life log updates from loggers and entertain the requests from viewers of this log. We named it 'Live Feed' server because of its significant role in updating itself with the fresh logs and their scope received from the owner of the log as well as responding the viewers with privileged logs for their current location.

3.3   Process of Retrieving Friend's Shared Life Logs

The retrieval of shared life logs is entirely based on the current location of the client provided some of his/her friends had previously been to that location. The client has to check-in and provide access of their facebook friends list to the application. Upon requesting the server for friends logs, the server checks for log entries that match the client's location, which means those entries corresponding the current city or street of the client, and sends only the names of people to the client who had been there. In the next step, the client's facebook friend list is compared with the names provided by the live feed server for possible friends. If there is a match, then, the server is requested again for life logs of matched people, as they are the friends of the client. Figure 3 clarifies the process of storage and retrieval of life logs at a certain location.
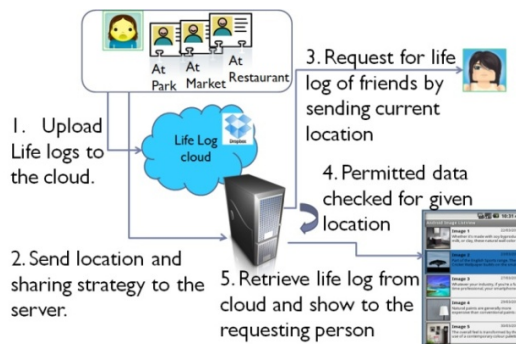

Fig. 3. Storage and retrieval of friend's life log

Viewing Image and Audio Logs. The life logs consisting of an image and audio recording are received in the form of an xml file with owner's name, date taken, name of the city and the dropbox link of the log to be streamed. In figure 4(a) & 4(b) we show a situation where a person visited 'University of Tsukuba' for the first time, and used the life log sharing application to familiarize with the new surroundings. He recognized that four of his friends, i.e., Tom, Jack, Marry and Larry had already been

there. Figure 4(c) explains that the viewers of the shared log may listen to the audio clip attached to that log and comment if they wish to commend or in some cases recommend something to the owner of the log.
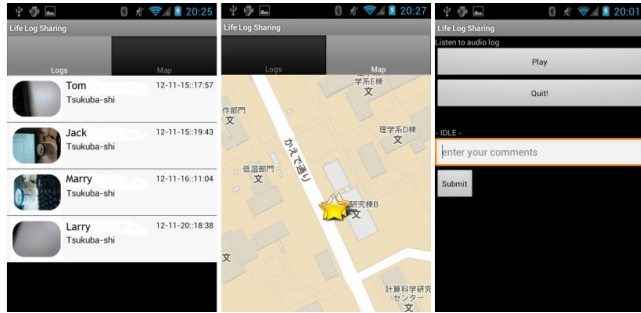

Fig. 4. (a) Retrieval of image logs of friends (left) (b) Location of generated logs (middle) (c) Interface to listen audio log and submit comments (right)

Viewing Logs Captured via Moodstocks API. The data logged with Moodstocks API is retrieved as an xml file with owner's name, date taken, context of scanned object or barcode and user's perspective about that log. In figure 5(a), a student checks in the university library and receives the log consisting of a picture of the book for psychology class by his friend 'Alice', prompting him to have glance at it. In another situation shown in figure 5(b), we talk about a person who checked-in a bakery and saw life log of 'blueberry bagels' captured by his friend 'Muller' who bought them earlier. Consequently, he also bought the same bagels since his friend already had a good experience of eating them.

Hence, the rich life log may assist the viewers of the log to comprehend their present location with the assistance of their friend's logs.
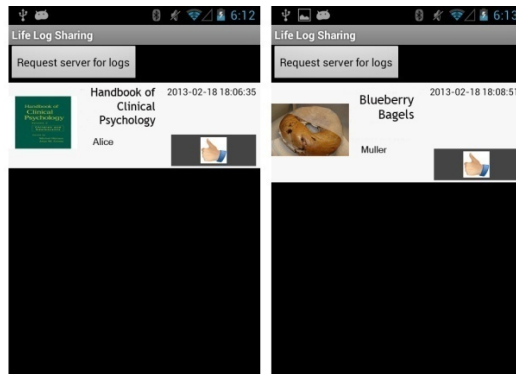

Fig. 5. (a) Book scanned and shared by 'Alice' at library (left) (b) Log of Bagels shared by 'Muller' at bakery (right)

4   Evaluation

The system was evaluated with the help of 8 subjects in total. We selected those sub-jects who were friends on facebook with each other with the aim of sharing and viewing of the life logs. All the participants (7 male, 1 female) between ages of 20 and 30 years were given a brief overview of the system and the prototype device was provided for making life logs and setting up their sharing strategy. Each participant used the device for one day and logged the information for their facebook friends to observe, in addi-tion, viewed the information shared by them while checking in specific locations. After the experiment, the participants were given a set of questionnaire which they could respond on a five point likert scale (1= Don't Agree ~ 5= Fully Agree).

1. Did you find the system useful to share life logs with friends?
2. Do you believe that the comments on your logs would benefit you by any means?
3. Is there any complexity while operating the system?
4. Do you feel contented to share your life logs with friends based on locations?

4.1   Results

We obtained a total of 37 logs from 8 participants with an average of 4.6 logs per person. The pie chart in figure 6 illustrates the sharing preference for logs produced at different locations by users. They comprehended the feasibility of the prototype ap-plication, thus, favored 'particular street' sharing due to its limited scope, whereas, only 38% of logs were shared within the city where the logs were generated. The option of sharing 'location free' was ignored by most of them due to its vast scope. There were overall 20 comments from users on each other's logs with constructive phrases, how-ever, two users requested to place an option to re-comment on the comments made by their friends on life logs, likewise they used to do on a social network.
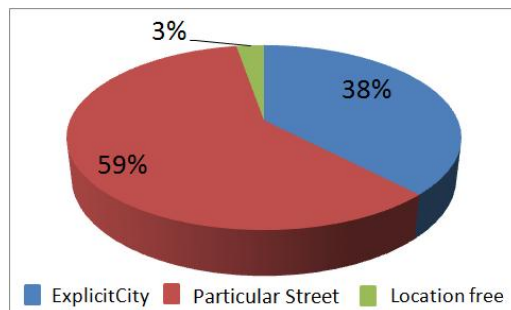

Fig. 6. Sharing preferences of users produced at different locations

The response of users about our prototype system was quite compelling and standard deviation for question no. 1 was 4.625(0.517) with n=8, although, two users

criticized the size of image log and quality of the audio when they succeeded in retrieving friends' logs. One user mentioned that he would prefer another social network with the prototype application since he had fewer friends on facebook. There were mixed responses on the convenience of comments on logs with standard deviation 3.25(1.281) for question no. 2. The prototype system was not very complicated to operate, as a result, we obtained 2(0.92) for question no. 3. Finally, the miscellaneous feelings over sharing their life logs with friends resulted in 3.25(1.388) for question no. 4, may be because, a single day was not sufficient for perceiving the practicality of the prototype. Thus, we are taking into consideration to assess the system for an extended duration and observe its usefulness in varied situations. In the next section, we elaborate significant related works to our research.

5   Related Work

The study by [9] encouraged us to propose a life log sharing strategy and revealed that the users of a sharing system were willing to share more if they were provided with complex and rich privacy dimensions. 'Locaccino', a location sharing software developed by [10], where users were able to set privacy preferences while sharing their current location based on their customized friend lists of facebook as well as different timings on a particular day of a week. We expose our past visited locations while sharing life logs, thus, our approach's main focus is to take advantage of one's life logs. In another research, 'Specter' [2] was developed for building augmented memories with the help of various sensors and a sharing model was proposed for utilizing these memories by sharing with others while obeying the owner's privacy preferences, but, since then, there have been drastic changes in the technology that has revolutionized the accumulation and usability of personal life log. The notion of cloud storage and social networking has transformed the way we perceive one's life log.

A sharing model was proposed by [3] for secure sharing of life logs with people for a limited period, but, it ended up with just a design with no real implementation. In [11], the authors focused on creating metadata automatically from personal life log and constructed a virtual world. In that virtual world, physical structures, such as buildings and objects are included as a virtual representation with reference to the way the physical space is constructed but a proper sharing strategy was not defined. Zheng et. al tried to use location history to develop social network and offer travel recommenda-tions. Their approach named as 'GeoLife' [12], is based on the GPS traces of people and the travelers make use of these travel sequences to attain information about most popular places to visit as well as the most feasible transportation mode to travel, but, their approach is favorable to travelers and tourists only.

6   Conclusion and Future Work

We have proposed a mechanism to take advantage of one's life logs by sharing noteworthy moments amongst friends with location reservations. This approach serves to prevent precious logs being shared with all the friends, except those who

may find them informative or assist the owner of the logs in one way or another. We succeeded to empower the users of the life log device to determine the visibility of their logs, since they are one of the beneficiaries of shared logs. On the other hand, friends who are the recipients of shared logs feel contented when they check-in a novice location and may have a better perception of that location. The evaluation results of our prototype system were quite promising with reference to sharing past happenings among friends.

With the availability of high-tech devices proficient of sensing the environment and objects around we believe that in near future, life log sharing would be more enjoyable. We will start a long term study to gain more knowledge about user's perspective of sharing their daily life events.

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