Aalto University
School of Science
Degree Program of Computer Science and Engineering

Ad-hoc social interaction for sports

Bachelor's Thesis

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ABSTRACT OF
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Contents

1 Introduction

Communicating with each other using technologies, such as Bluetooth, is becoming ever more popular in the field. Both old and new emerging technologies enable us to create new ways of establishing communication between total strangers with similar interests. This thesis describes how these technologies can be used to create social interaction between strangers and therefore increase their well-being of people and their performance during sports.

Familiar strangers is a concept first introduced by the psychologist Stanley Milgram in 1972 in his essay (Milgram et al., 1992). We often come across to the same strangers while doing sports, but do not interact with them. These people, that you have met frequently but never interacted with, are called familiar strangers. (Paulos and Goodman, 2004). Familiar strangers as a concept isn't limited to sports, but targeting the research to people who have similar interests (sports) by definition makes monitoring of their behavior simpler. While social networking between strangers has been research before, this concept of social interaction between familiar strangers in sports, is new in the field.

Methods used in this paper to research this problems are:

- Literature review.
- Conducting interviews.
- Creating a prototype application for research data.

This paper presents a prototype Android application that will log the times strangers passing by you. When you come across to a strangers enough times, the application will suggest communication with the stranger. With the prototype, you can view where and how many times you have encountered that person and what are they interested in. Interesting questions related to this prototype application are, whether users are willing to establish communication based on similar interest and similar real-life habits (sports routes and times) and also how much information users are willing to share to total strangers. Data gathered form this prototype application can later be used to verify assumptions about the users behavior and to learn new information. The prototype application takes privacy seriously and is quite conservative about sharing information. The level of privacy can later then be modified based on feedback from the users.

The interviews were composed from open-ended questions where the goal was more to find new information rather than just to validate previous assumptions. The interviews were extensive and performed only for a handful of possible end users of the application. No survey's were conducted for this thesis.

2 Related work

This section presents related works from two perspectives: the social interaction perspective and the perspective of doing sports. The design of the prototype application relies on results from both of these perspectives.

2.1 Social networking

Väänänen-Vainio-Mattila et al. (2010) studied ad hoc social networking with a social networking system called TWIN. In a survey conducted after the study, the method for approaching unfamiliar persons was one of the highest rated features of the system. Eagle and Pentland (2005) conducted a survey where 90% of the participants stated that they would use regularly a service which would help introduce nearby strangers to each other. Serendipity, the application created for their research, is a mobile match-making system which alerts users when someone with similar interests comes into proximity. The reactions to the system have been overwhelmingly positive. These results imply that systems which allow people to interact with familiar strangers are in fact desired by users.

2.2 Sports

Meeting strangers is only one part of the assumed benefits of the prototype application. Previous research suggests that doing sports in a group or together with a friend results in increased performance. Therefore, the findings suggest that finding strangers with similar interests and a similar level of fitness to do sports with would result in a performance increase for the user. However, finding people to do sports with can be an daunting task especially for people who have just moved to a new city or a country. It is important to make finding strangers as easy as possible with the use of modern technology without compromising the privacy of the users.

One of the concerns of creating the application is that how frequently people doing sports actually meet familiar strangers. Setting the level of passing by's before allowing users to communicate with each other affects the whole user experience of the prototype application. Research by McGookin and Brewster (2013) showed that distance is the key thing what joggers are thinking about while running, not about using familiar routes. However, while routes change, joggers use familiar locations more than once. They usually leave out a part or add one based on their overall feeling. The fact, that joggers reuse locations increases the probability of running into familiar strangers along the way.

3 Interviews

This section describes the methods used for the interviews and the results gained from them. All interviews are anonymous and only basic demographic information about age was gathered from the participants.

3.1 Method for the interviews

The interviews consist multiple open-ended questions. The goal is to find out information about how people behave while doing sports. The main questions for the interview are:

- Age?
- What sports are you doing?
- When are you planning to do sports next and what are you planning to do?
- What kind of sports goals do you have?
  - What is keeping you from achieving them / what has helped you achieve them?
- What do you carry with you while doing sports?
- Do you do it alone or with friends?
- Have you interacted with strangers while doing sports?
  - If so, how?
- How does your motivation differ while doing sports by yourself and in a group?
- Have you used any kind of tools to find people to do sports with?
- Do you use any sports tracking applications?
- What information about your sporting habits would you be willing to share with strangers that you come across often?
- Would you be interested in trying out a tool which would suggest messaging people that you come across often while doing sports?

The questions aren't meant to be strict, just a guideline for the discussion. If new interesting discussions emerge while interviewing, the point is to go forward with them without thinking too much about the guideline presented previously.

In total, X amount of people were interviewed for this study. X of them were male and Y of them were female.

3.2 Results

4 Design

FIrst and foremost, the application's main goal is to allow people to connect with familiar strangers and find people to do sports with. The process of meeting a familiar strangers and connecting with them can be divided into a few steps:

- Pass by the person enough times
- View information about the person and their interests when the application suggests communication.
- Hit them up with a message.
- View their real-life information after both agree to do it and start doing sports with them.

4.1 Passing by

Using beacon's the application will log every person that passes by. Only one of the people have to have their mobile phone with them since all the encounters are stored in the server. The hard part of this section is to select the amount of pass by's that initialize communication between the users. The initial selected value is three times. This can easily be adjusted from the server later so no additional application releases need to be made. Three times most likely will be too low when the amount of users for the application grow. If a larger study is done later to validate the users behaviors, the amount should be upgraded.

4.2 Collected information

After the user has encountered a familiar strangers enough times, the application will suggest communication between both parties. The user will see the other persons public interest that they have filled while registering to the application and also display the locations on the map, where they have encountered each other. No other data is visible at this moment to the users. The designed views look like this:

4.3 Approaching

The inital approach towards the other user can be done anonymously. It's possible to send messages to each other just to ask what they are interested in and see if both of them would be intersted in doing sports together.

After this, or before this event, it is possible for the user to request real life information from the other person. Only after both parties agree to reveal information will anything be revealed. After that, it is possible for both of them to continue doing sports together and find meaningful things to do in life. A record of their communication is left on the app, and it will not log any pass by's from the other person anymore at this point. Until real-life information is accepted, the application will still log encounters from the person and view them in the list of encounters unless the user removes them manually from the list.

5 Prototype implementation

The created prototype is an Android application. The programming language for the application is Kotlin. Kotlin helped to reduce the amount of bugs during the creation process and proved to be a very useful selection for the application.

6 Discussion

6.1 Results of the study

6.2 Future work

7 Conclusion

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