**COMP. 5800 Topics in Ubiquitous Computing**

**Final Project**

**Topic: Matchmaking**

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**Problem:**

About 50% of American adults are single which is a significant increase compared to 1950 where the rate was at 22%. People are becoming pickier with the rise of online dating today. Unfortunately, people have little time to find the perfect person and they are not willing to settle for anything less. Love is one of the six human needs, and the rise in single people is not healthy. Current dating sites only use a questionnaire to gather information about users. User input can be a burden and easily can get out of date.

**Related Work**

For now, there are a lot of TV programs for matchmaking and dating. “Take Me Out” , a famous one, which is a dating game show. This TV show began rising on TV in the UK on January 2nd, 2010. The show format is a single man obtains a date with one of thirty single women. All the women stand on the stage, and each of them have a light. The women have a button to control the light. A single man comes out, and the women choose the man during five rounds. After five rounds (First sight of the man, Pre-record a video about the man’s background, Video for displaying a skill, or have another video to interview some friends or family members about the man and Q&A part), if the women thinks the man is the right person, they turn their light on which signifies they want to go dating with the man. There are several other TV shows that follow the same format around the world. It’s a popular entertainment show, but it cannot solve the large population of single person problems. Firstly, this kind of TV show fits for a small group of people. Secondly, the TV show time is short, and the people can not know each other well in a short time. Additionally, some of them show their best, with the pre-record video, some of the single person are behave affectedly.

Another popular dating form is using dating websites. From the customer’s review, the top three dating website are “Zoosk”, “Match”, and “OurTime.com”. All these three website have the features that are free and have a large member database. The member should use their real information to register. With the instant-messaging technology, the member can communicate each with others if they want to get to know each other. Based on the member’s age, ethnicity, religion, education background and personal appearance information and hobby, system will recommend the “right person” to the member. It is good for some person who are shy. To the contrary, it is hard to distinguish the person is good or not on the Internet.

Nowadays, people are changing their way to find romantic partner by using Internet. It is not only a matchmaking system but also help the single person make friends. An efficient way to build social network. There are millions of American adults that are single. Many of them had found their couple from Internet, especially the homosexual couples. From 1990 to 2010, the online dating rate for the heterosexual couple rose from 0% to 20% and the rate for the homosexual couples rose from 0% to 70%. The age range for online dating is from 20 years old to 70 years old. It concentrate mainly on 30 to 40 years old. So the online dating could be the main stream in the future.

In the recent study, the sensor technology which always used is location sharing. The computation recommendation lists is contributed by the location sharing sensor. The people shared their locations, so that the system could collect all the location data, and based the shortest path algorithm, it accepts weights on the network that represent capacity constraints. In additionally, the Markov Chain Algorithm could help find the score between a pair of nodes randomly. So it is easy to finding the person nearby and the place the person often went to. Location sensor using in many social network mobile applications, like Facebook, Twitter and so on. It can also use in the MatchMaking mobile application. Sharing footprint can make more friends.

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| Features | Comparison Between Three Kinds of Dating Methods | | |
|  | TV Dating Program | Online Dating (Website) | Dating Mobile App |
| Entertainment | Yes | No | No |
| Mass Participation | No | Yes | Yes |
| Real-time | No | Yes | Yes |
| Sensor Technique | No | No | Yes |

**Proposed Solution**

Our proposed solution is a mobile application. It does not require any additional hardware, and it will only need users personal smartphones. Smartphones have a lot of sensors built into it and can be used for generating user profile. The application will first start with creating a user account and profile. We will need user’s consent to extract data from their smartphones, and the user will fill in a preference survey. Data that will be extracted from the phone will be: GPS location data to identify user’s favorite spots; microphone to detect whether user’s environment is mostly loud or quiet in general; application usage to check the type of mobile applications that are frequently used; text and call habits; sleeping habits; music preferences; accelerometer and gyroscope to check whether the user is an active person, etc. With all this data along with the survey, the application can generate a comprehensive user profile. By comparing user profiles with algorithms, the application will produce a suggested match list. The suggested match list contains a list of users that matches with our target user. It will also list out their common interests. Users will be able to send messages to their potential match. In addition, we added a mentor chat feature, where there are professional dating coaches to guide the user in different aspects. This may include fashion advice, conversation starters, dating ideas, problem solving, etc. Furthermore, to account for GPS accuracy problem, we added a check-in feature for users to check in at their current location. The application will keep track of their favorite check-in locations. This will be kept as a record in user profile. There are screenshots below to visualize our idea mentioned above. It will be cross-platform since we used ionic framework for this prototype.

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| 1. Sign in screen | 2. Complete survey | 3. Side Menu Design | 4. Check-in feature |

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|  |  |  |  |
| 5. Suggested Match | 6. Match Profile | 7. Match Chat | 8. Mentor Chat |

Here is a link to the prototype: <https://creator.ionic.io/share/14e9b0d0ef0c>.

**Evaluation:**

We would conduct a user study consisting of 50 participants over the age of 18. We are seeking mentors and people looking to find the perfect person. Recruitment would be done using online advertisement and craigslist. Users would be provided with smartphones to collect data. The users would be mixed genders, and mixed preferences. The study would be a month long and consist of 2 phases. The first phase would be gathering initial user data and mentoring. The last stage would be match making, dating, and mentoring. During both phases, data would be collected from the smartphones including: location, texting habits, call habits, sleeping habits, app usage, ambient sound levels, health data, and music preferences. We would also have built in analytics to track what parts of our app people are using. Users would be asked to testing chatting with mentors and other users. We would have have the user checkin to places, so we can get a more precise location. At the end of the study we would give the users a questionnaire consisting of: how would you rate the people you met? Was the app easy to use? Were the mentors useful? Would you recommend our app to anyone else?

**References:**

[**http://journals.sagepub.com/doi/abs/10.1177/0003122412448050**](http://journals.sagepub.com/doi/abs/10.1177/0003122412448050)

[**http://dl.acm.org/citation.cfm?id=1639766**](http://dl.acm.org/citation.cfm?id=1639766)