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REPORT OF RESEARCH RESULTS

Thailand

Title: Participatory Design for Developing User Generated Content Mobile Application to Raise Traffic Safety Awareness in Senior Citizen

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Summary

In the aging society era, the elderly people are prone to travel by themselves. With the limited of their health condition, they are vulnerable to road accident. The elderly people think that they have more experience but in real life there are more cars on the road now. Moreover, their physical and mental health has deteriorated. Many carers have tried to raise awareness to their elders but it is not easy to teach the person that were born before them. This is especially difficult with the way Thai culture operates. Even though there is a lot of media created to raise road safety awareness for elders. But this is too general, and elders do not take it seriously enough. This is because they think they have seen it all before. Hoekstra and Wegman suggested that the local and personally directed campaigns have by far the biggest effect on road accidents. Moreover, in real life, there are different types of traffic conditions in different areas of towns, villages compared to cities, which may cause concern for the carer of each elder, depending on their homes environment. Therefore, content of the media to raise traffic safety for each elder should be adapted accordingly to increase the effect.

User generated content is any form of content that have been posted by users of online platforms. The content can be in a form of images, video, text or audio. It has become a huge resource of big data. Moreover, the user generated content plays an important role in raising awareness in many topics or brands. Furthermore, mobile technology is improving and its price is more affordable. People at all ages own the devices for their convenient. This is one of the resources of fresh and informative user generated content. People like fresh information and information from someone that they know or trust.

Nowadays elderly have easy access to the mobile phone. They use mobile phone as tool to communicate with family and stay mentally active through mobile games. It helps them feel useful again.

The mobile application is developed by adopting a participatory design technique where the users become an important part of our design and developing process. According to our design decision based user generated content concept and our analysis of the characteristics of our context of use, paper prototype is used to get the feedback from the users at the early stage including interaction GUI design and game strategy design. This stage gives us the clarification about our design before doing the long and expensive process of programming.

We have tested our final product with the elderly people. They found it very interesting. The carers found it is very useful. We found that elderly users are capable of generate content too. However, the small screen on the mobile device did cause some troublesome. The final interactive media products are in both Thai and English languages. They are ready to be uploaded from A Google play store for people around the world.

Aim of Research

Elderly people force to live by themselves in the aging society era. Therefore, they have to are prone to accident on the road because of their physical and mental decay. Their family members are concern about their traffic safety.

Therefore, the aim of this work is to develop a mobile application as a medium for the carer to communicate with their elder. It is aimed to increase the local and personally traffic safety awareness for their elderly in order to use the user generated content mobile game to raise the awareness of the elder's local dangerous or road accident prone area by themselves at their own time. As a result, the carers can get involved in preparing new and updated content to increase awareness in traffic safety to suit their elder's needs at their own time. Furthermore, the elders seamlessly learn about their traffic safety in their area at anytime and anywhere, in a fun and enjoyable manner. This should improve their understanding about the traffic safety and provide a better awareness and consciousness in their everyday life. This hopefully increases the safety of an elderly person, travelling on the road.

Method of Research & Progression

The research process is divided into 6 parts.

The first part is the important part of literature review about the related works. This includes the researching about the road safety situations that are related to Thai elderly everyday life.

The second part is done in order to understand about the carers' concern about the road safety in elderly. As this work is design based on the participatory design technique, users including doctors, carers and elderly people are included in the focus group to analyse and finalize the requirement of the application. The discussion with elderly people, carers and doctors who is working with elderly patients helps us understand the needs of carers in raising awareness of traffic safety for senior citizen. Moreover, the examples of the games that the doctors encourage elderly people to play on their mobiles are discussed in order to analyse the design of the games in our application. Moreover, the requirements from the elderly people, carers and doctors are gathered at this stage too. The situations and game strategy were finalized at this stage. We decided, in order to make the most of the fresh and location based content, the content from the user generated part is used in the game parts.

In our third part, we applied the user generated content concept in our design of the application. From the requirements and the analysis of the characteristics of users, we setup the usability goals for our application. As a result, paper prototypes were developed. The paper prototypes were used in the focus groups with elderly people in order to evaluate the interface design and usability goals. Also the high level prototypes were used to evaluate the game strategy and design too. We found that there is different level of users therefore we have 2 type of games in our application.

The fourth part is to develop the final product based on the result of the evaluation of the prototypes from the previous section. The third and fourth parts are done simultaneously in order to make sure that the product meet users' requirement. It is an iterative design process in order to build a closed understanding with the users. The user generated content application is combined with the games. This is done by using the content from the user generated application in the games part of the application. As a result, our finalized product was developed based on this concept.

The fifth part is an overall evaluation of the final products. The final product was used to test with elderly people.

After our user testing, the final products are launch on the Google play store. The final report is generated.

Results of Research

From our method of research, the results divided into two main parts the result of the user generated content application and the game parts.

In the first part, the result is concentrated on the design based on the users' requirements and the user generated content concept. The analysis from the focus group and participatory design concluded that the user generated content should be simple but have information to raise awareness of traffic safety in their local area. Therefore, the application allows users to take a photo, add short description and automatically get the location. This should reduce the step for the users in using the application. The Figure 1 shows some sample of our application.

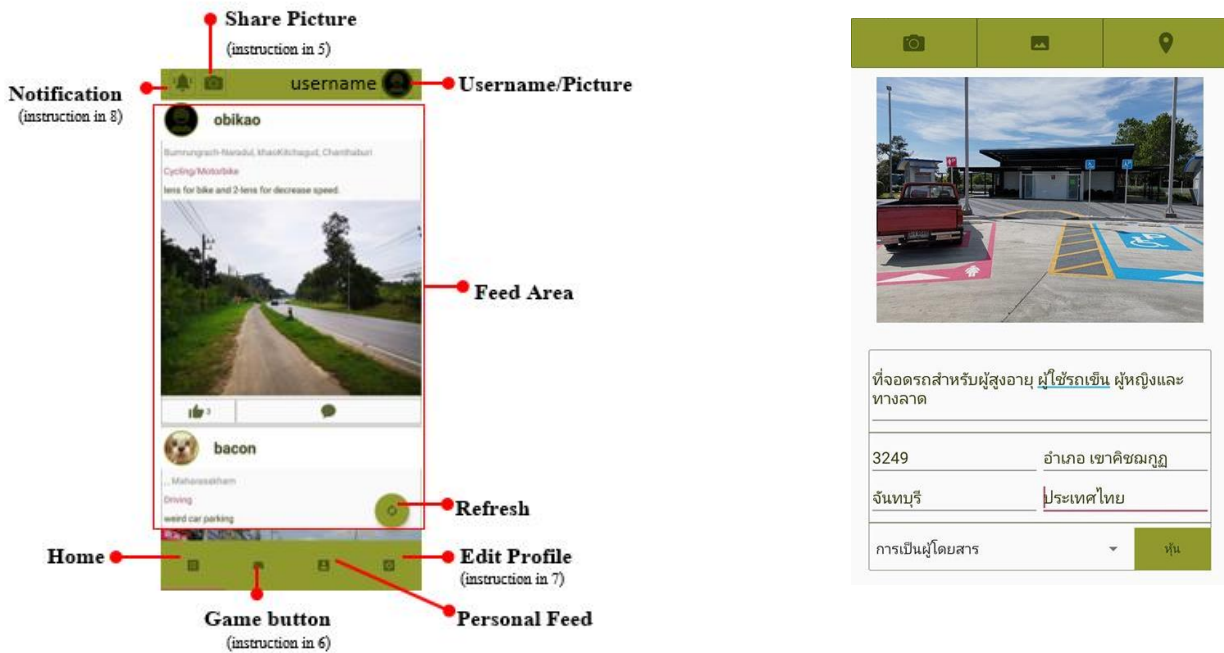


Figure 1 Example of our user generated content part.

In the second part, the result is concentrated on applying the content from the user generated part in the games in order to make it challenging for the elderly and also raise awareness of traffic safety in the user's local area. The photos are used in two type of games. The Figure 2 shows some sample of our games in the application. First game is simple yes or no question. It asks whether the stated location is matched with where the photo was taken. Another game is to ask for the location where the photo was taken. The application randomly picks the photos that were taken in the same or surrounding area of the user's location.

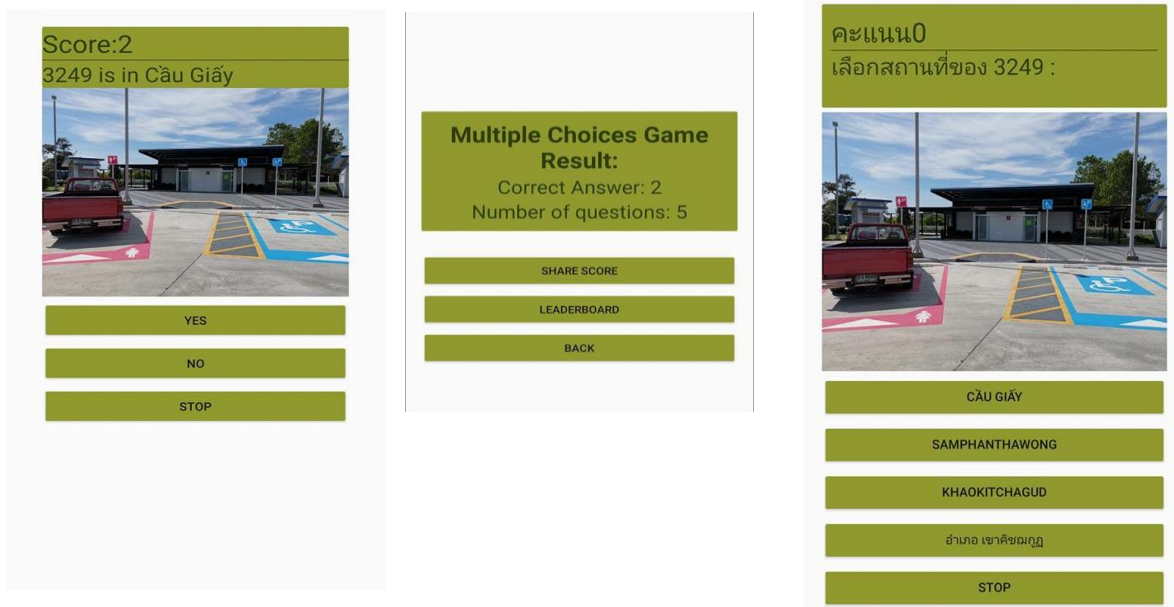


Figure 2 Example of our game parts.

In the second part, our final product is being test with the real elderly in order to evaluate the application. Figure 3 demonstrates our experiment with elderly users in their environment. From our observation and interview with the elderly users, it is notable that the application is an excellent medium that can draw their attention. They are excited about the functions of the application. But they still find the small screen is troublesome.



Figure 3 Example of our experiment with elderly.

Future Areas to Take Note of, and Going Forward

For further studies of our design, the application will be tested with more elderly people and carers in order to understand further impacts in elderly behaviour. The real situation setup will be used instead of questionnaire in order to understand the knowledge transfer of the application in elderly. Furthermore, the understanding about the joint engagement between elderly people and carers will be studied in order to come up with the design guideline for application that will increase the efficiency in the joint engagement between elderly people and carers.

Means of Official Announcement of Research Results

Android application of “Road Safety For Elderly Community” is published on Google Play Store.
<https://play.google.com/store/apps/details?id=msu.roadsafety>

