

# Development of a Hamster Knowledge System Based On Android Application

Satien Janpla, Thanawan Boonpuck, Pattarapan Roonrakwit

**Abstract**—In this paper, we present a hamster knowledge system based on android application. The objective of this system is to advice user to upkeep and feed hamsters based on mobile application. We describe the design approaches and functional components of this system. The system was developed based on knowledge based of hamster experts. The results were divided by the research purposes into 2 parts: developing the mobile application for advice users and testing and evaluating the system. Black box technique was used to evaluate application performances and questionnaires were applied to measure user satisfaction with system usability by specialists and users.

**Keywords**—Hamster knowledge, android application, black box.

## I. INTRODUCTION

**H**AMSTERS are rodents in the subfamily *Cricetinae* [1] and they were first discovered in Syria. However, they are native to many parts of the world. The name is derived from the German word “hamster” which means “hoard”—because that is exactly what they do with any extra food they might find. Although their downright cuteness makes them popular with prospective pet parents, these animals have some special requirements that must be met in order for them to be happy and healthy [2].

With recent advances in information technology becoming an integral part of everyday life, smart mobile device is possible to take advantage to advice and educate how to search information about hamsters such as choosing what kind, caring for them, handling and even breeding. In addition, mobile devices become more widely used as an opportunity to seed knowledge of hamster pet aspects [5].

Therefore, this project aims to implement a hamster knowledge system based on android application so as to advice user to upkeep and feed hamsters based on mobile application.

The remainder of this paper is organized as follows. Section II presents the system framework of this project. Section III presents the results evaluated by experts and users. Finally, Section IV concludes the paper with future work.

## II. THE SYSTEM FRAMEWORK

To implement this project, we studied and collected data from user’s requirements. The information was used as a

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source of information for management web and mobile applications and database management and internet network technology were applied to make the system fast and efficiently work. From analysis and design phase, we applied UML (Unified Modeling Language) as a tool for this step and Fig. 1 was presented use case of this application.

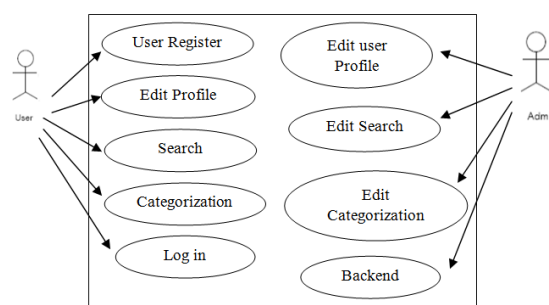


Fig. 1 Use case of the Application

The system can be divided to 5 parts as following; a user registers part, an edit profile part, a search part, a categorization part, and a backend part. Fig. 2 presented the framework of the system.

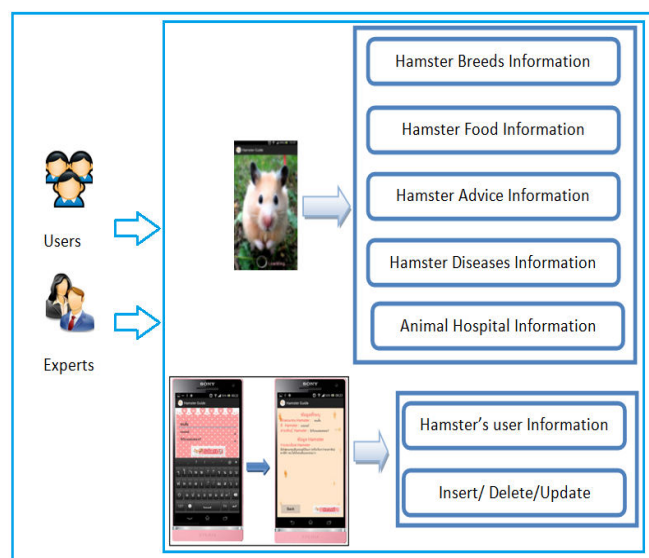


Fig. 2 Framework of the application

In the user registers system, hamster’s user can subscribe his/her profile such as personnel information, pet’s name, email address, username and password, and etc. The edit

profile system allows user to edit his/her information and user can search for information of hamsters by using a search system.

Testing and evaluation of the system were divided into two parts: black box testing and questionnaires by experts and users. Black box testing was tested based on the performances of this application and collected errors of the system [3]. Questionnaires of the user's satisfaction were evaluated by experts and users. To evaluate the quality assessment system, mean ( $\bar{x}$ ) and standard deviation (SD) were used to assess the abilities of the project.

III. RESULTS OF THIS SYSTEM

In this project, it was divided the result by the research purposes into 2 parts: developing the mobile application based Android System for advice Hamster's owner and testing and evaluating the system.

A. Developing the Hamster Knowledge Application

Developing the mobile application, from Figs. 3 to 5 were shown the results of this project.

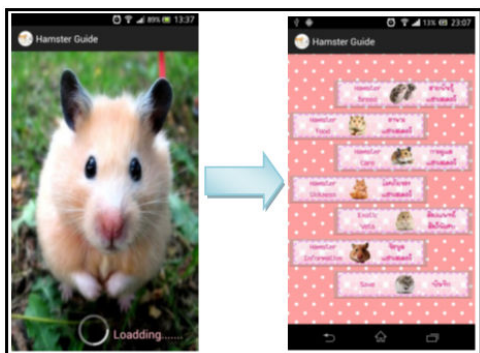


Fig. 3 The main page of application

Fig 3 presents the main page and a guide page for this application. User can choose hamster information such as hamster breeds, hamster food, and etc.

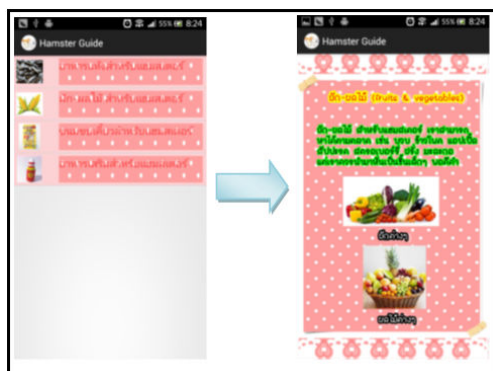


Fig. 4 The results page of application

Fig. 4 shows the results of hamster foods and Fig. 5 displays information of animal hospital that user can bring pets to the veterinarian.



Fig. 5 The search page of application

B. Testing and Evaluating the Qualities of the System

When tested and evaluated the qualities of the system, black box testing and questionnaires by specialists and users were used to test this project.

Black box testing is the testing approach that ignores the internal mechanism of a system or component and focuses only on the outputs generated in response to selected inputs and execution conditions [4]. Black box testing was determined the error of the project as following: functional requirement test, function test, usability test, performance test and Security test.

Functional requirement test was evaluated the ability of the system to serve the needs of the users and Functional test was used to evaluate the accuracy of the system. Usability test was tested the suitability of the system. Performance test was assessed the processing speed of the system. Finally, security test was used to evaluate the security of the system Table I was shown the results of black box testing.

TABLE I  
THE RESULTS OF BLACK BOX TESTING

	Experts		Users	
	$\bar{x}$	SD	$\bar{x}$	SD
1.Function Requirement Test	4.10	0.74	4.15	0.75
2. Functional Test	4.20	0.63	4.10	0.72
3. Usability Test	4.27	0.79	4.10	0.79
4. Performance Test	3.90	0.88	3.95	0.89
5. Security Test	3.80	0.79	4.05	0.76
Average	4.05	0.77	4.07	0.78

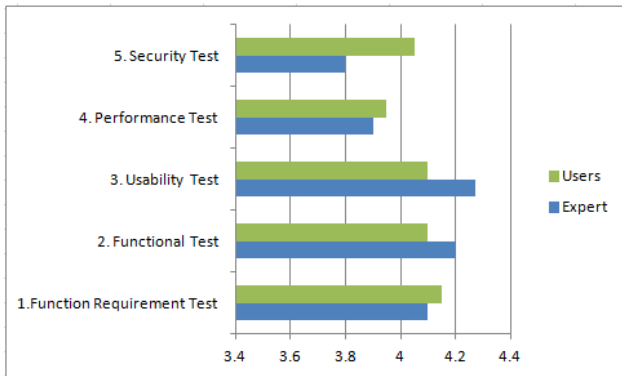


Fig. 6 The results of black box testing

As shown in Fig. 7, the results of data analysis by using Questionnaires to evaluate user satisfaction were found that specialists and users have satisfied the performances of the system as well.

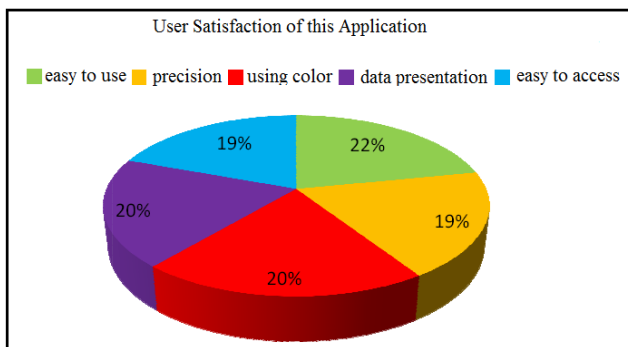


Fig. 7 The results of user satisfaction

#### IV. CONCLUSION AND FUTURE WORK

In this paper, we show the result of developing mobile application based on Android System to advice and give knowledge to user to fed hamsters. However, in term of the future experiments, we are looking forward to improve the application by using other technology and techniques to enhance this project and also apply the tool to handle this application.

#### ACKNOWLEDGMENT

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#### REFERENCES

- [1] Hamster (online) access from : <http://en.wikipedia.org/wiki/Hamster>. [Feb 27,2014]
- [2] Hamster Care (online) access from : <http://www.aspc.org/pet-care/small-pet-care/hamster-care> [Feb 27,2014]
- [3] Amman and Offutt, "Introduction to software testing", chapter 1, pp. 6-7.
- [4] Laurie Williams. "Testing Overview and Black-Box Testing Techniques"., 2006.
- [5] Bing Kou, Tianfu Liu, Guohua Song, Zhaoyang Chen. "Development and Application of Chinese Hamster Information Management System". W.deng(Ed.): Future Control and Automation, LNEE 173, pp.283-289 Springer-Verlag Berlin Heidelberg 2012.