THE DESIGN MODEL OF RABBIT CARE RECOMMENDATION SYSTEM BASED ON ANDROID APPLICATION.

Kittikhun Meethongjan[*], Pravitra Thitimapong[**], Nisanart Tachpetpaiboon[***] & Suwit Kongsong[****]

[*, **, ***] *Computer Science Program, Department of Computer Science, Faculty of Science and Technology*
[****] *Social and Cultural Management Program, Department of Social Sciences, Faculty of Humanities and Social Sciences*
Suan Sunandha Rajabhat University, Dusit, Bangkok, Thailand.
E-mail: [*]kittikhun.me@ssru.ac.th, [**]pop_pepo_1991@hotmail.com, [***]nisanart.ta@ssru.ac.th, [****]suwit.ko@ssru.ac.th

ABSTRACT

In order to design the model and develop the mobile application to promote a good health and longevity of the rabbit. This research focus on the recommendation of technique to take care the rabbit house for the owner that can be use this application 5 species such as Holland Lop, Netherland Dwaft, Woody Toy, French Lop and Mini Rex. All information was collected from agriculture and the rabbit loves group. The author has designed the system application by collecting the data from the user and fusion with the technique of mobile application design. After design and creation, the model of this system was evaluated with 20 users and 10 experts that obtained mean and standard division in 4.25, 4.53 and 0.51, 0.58 respectively. Furthermore, the quality of the design model of rabbit care recommendation application can be used a main information tool for the animal care recommendation.

Keywords: Rabbit care recommendation, Rabbit mobile application

INFORMATION

Rabbit is well-known vertebrate mammals, which in Thailand, most of them are popular as animals beautiful. They are clean, beautiful, reaction to cuteness, easy to raise, fast growing and tame animal that is not ferocious or dangerous in any way. It is suitable animal for children that helps to convince the children to have an interested in the nature of animal life, compassion for animals, gentle mind, and use free time to be benefits. In addition to rabbits being adopted as a hobby, they are also economic animals that are raised as farms to generate income for entrepreneurs. Now a day, many new businesses related to rabbits have occurred, such as rabbit food, clothing, products, and accessory.

However, the main factors that damage and cause concern for rabbit owners are a disease that causes rabbits to die. The main reason is often caused by the party still not understanding how to properly raise rabbits and lake of correct understanding about feeding to rabbits. Basically, in a well-rabbit farm is very few chances of death or disease of rabbits. In contrast, general owner who lacks the knowledge about proper rabbit farming will have a very high mortality rate of rabbits. Therefore, the preparation of learning media on how to raise rabbits is very important for raising a rabbit that is correct, appropriate and effective.

In this article, we present the model of rabbit care recommendation system that is a mobile application base on android application. The aims of this study are 1) to design and create mobile application in technique for raising and caring for rabbits, 2) to propose a new choice of learning media online system for rabbit owners and other people interested in rabbit

care. The content details are characteristic, property and rabbit life cycle of five species that are consist of Holland Lop, Netherland Dwaft, Woody Toy, French Lop and Mini Rex. In addition, the system presents the recommendation of food and the amount of food by age, disease and disease prevention and site preparation that divided by the age of the rabbit. There are seven age range; infant/baby, kids, junior, adult/senior, pregnancy and location, and senior. The result was to benefit their rabbit farm or owners that supports rabbit health, care and reduce the number of deaths. Furthermore, this mobile application also promote to the prototype for other agriculture in animal farm [1], [2].

LITERATURE REVIEW

There are hundreds of rabbits currently raised around the world. It can be divided into rabbit meat, rabbit fur, beautiful and rabbits is used as experimental animals Rabbit breeds that are commonly reared are: Native Breed, New Zealand White, Californian, Zika – Z, Chinchilla, Checkered Giant, Rex, Lop and Angora [3]. Aleen Chalermchaikit [4] presented the type of rabbit in the tools book for rabbit. There are two groups, the first group is "Pika" (Family Ochotonidae) that are 30 species and the prototype of japan cartoon "Pikachu". The distinctive features are the shape of a small round, small ears and round, short legs, and eyes. The second group is "Rabbit and Hare" (Family Leporidae) that are 61 species as bigger body, more angular shape, and bigger eyes. It is a nocturnal animal and often looking for food at dawn and in the evening. Normally, it does not make any noises.

Boseze Zs. and Houdebine L.M. [5] proposed the application for rabbits in biomedical research in a review. The specific importance of the rabbits as models and protein products that are a significant source of meat in oversea. The rabbit is widely used for support in specific biotechnology research. Beside, cloning has been completely achieved good results. The rabbit genome sequencing is also in the course of providing with unknown genes and genetic markers. Therefore, the rabbit is especially flexible for the preparation of human antibodies, and recombinant human proteins for replacement therapy have been produced singly in rabbit milk.

Oseni S.O. and Lukefahr S.D. [6] published the research output in rabbit science and production emanation from sub-Saharan Africa-implications for future research and development efforts. They prove trends and quantitative research in all aspects of rabbit science and production emanating from sub-Saharan Africa, focusing on their participation in the development of viable and sustainable small rabbits. The objective is to study the trend of scientific research in all areas of rabbit science and production and to assess the participation of research and development (R&D) in rabbit and production science that focuses on small-scale farmer units. The results showed that over 80% of the publications where basic research output, undisciplinary in nature, and were conducted under on-station conditions, while about 10% of the research studies had some form of foreign collaboration through technical support and/or funding. Publications in journal papers accounted for 88% of the publications, while the rest were from Conference Proceedings (mainly World Rabbit Congresses) and other reports.

ANALYSIS AND DESIGN

In order to perform this study, the author investigated by collecting data from the related works and the expert group. All information was used in the analysis and design state that perform to manage the mobile application and database. It also was helpful the researcher to make the system fast and works easily. This mobile application must be compatible to use all international mobile browsers. In this study, the technique to use for analysis and design

that can be divided into 4 steps as follow: system overview, use-case diagram, database diagram and sequence diagram of the system of the mobile application as shown in Figure 1-4 consequently.
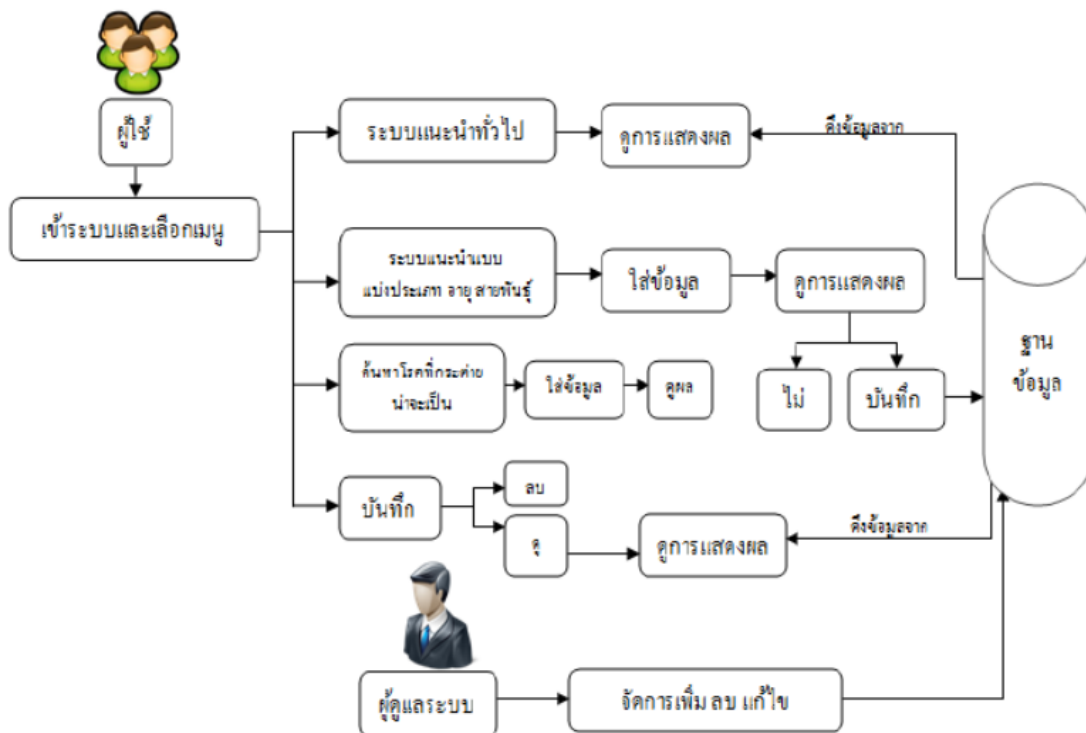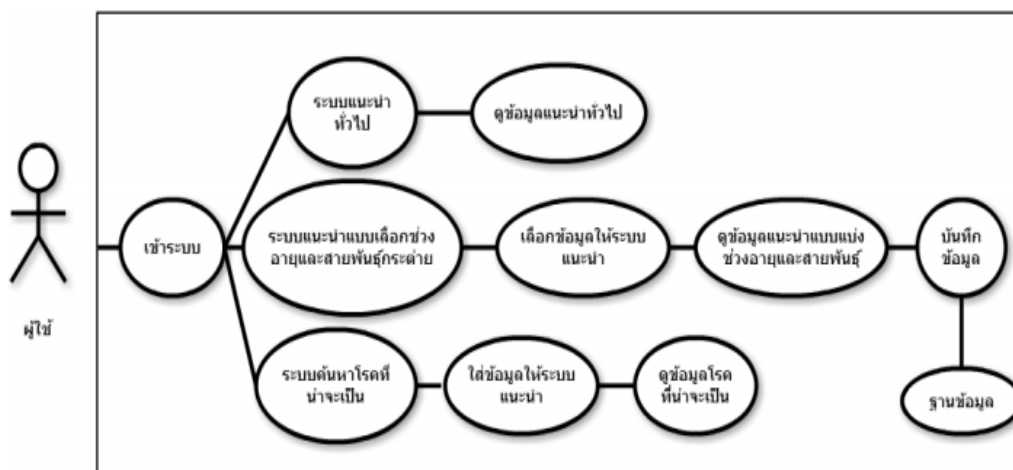

Figure 1. The System Overview
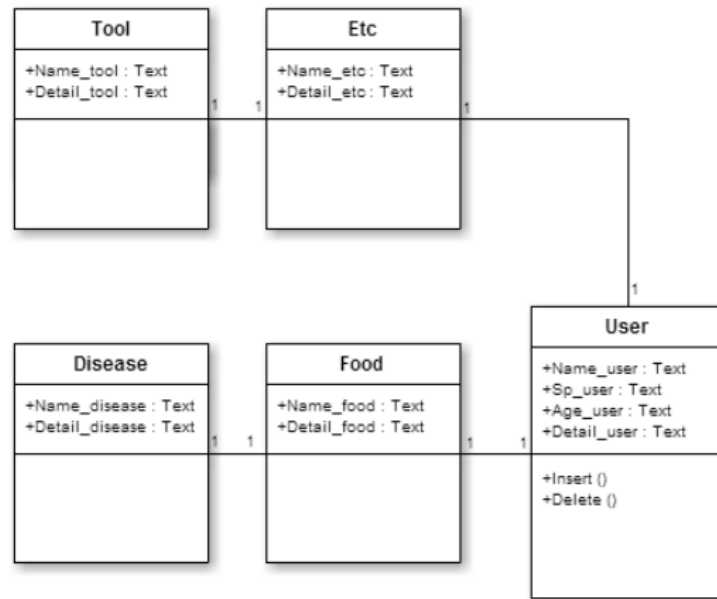

Figure 2. Use-case diagram of the system
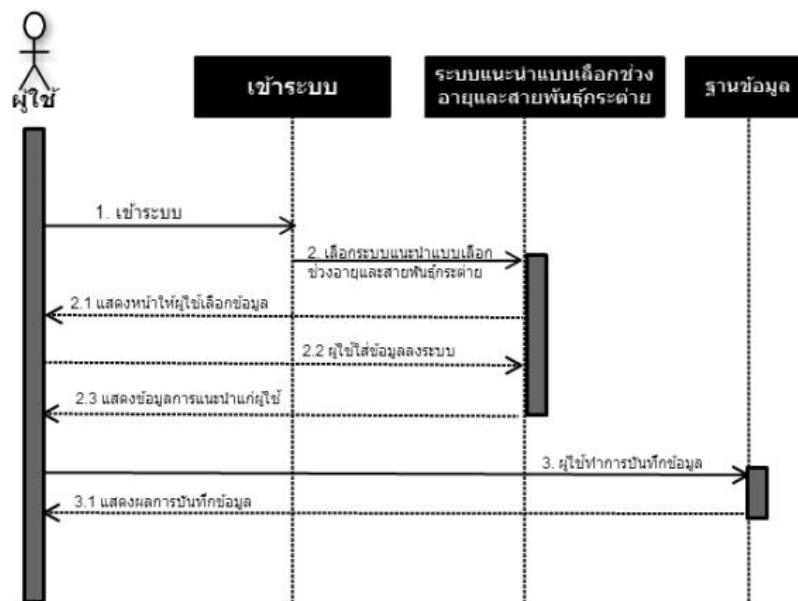
Figure 3. Database Diagram

Figure 4. Sequence Diagram

RESULTS AND DISCUSSION

In this study, the result was divided in 2 parts: development of mobile application and evaluating performance and satisfaction of mobile information on the design model of rabbit care recommendation system based on Android application.

1. Developing of mobile Application

The state of development the mobile application system in this paper, Adobe Photoshop CS5, Android SDK, Java, Eclipse and SQL Browser Data software ware used to develop in this work. This system has been tested with Laptop, Android Smart Phone and PC

computer that was built by researchers. The home page is displayed the menu keys such as location name search, arrow selection show, main menu and details that depend on the user selection. Besides, the user can click on the text box and fill in the form to set up the system that can be adapted or change the parameter by themselves. For a backend, the system administrator used to manage the policy such as log-in name and password. This system also offers the administrator to edit or updating more information any time that corresponded to the related information in the database as shown in Figure 5-9.

Figure 5. The Icon of Application

Figure 6. The Homepage of Application

Figure 7. The Sub-page of Register and Fill the details

Figure 8. The Rabbit Species Menu

Figure 9. The Sub-Page of Rabbit Information Learning

2. Evaluating the performance and satisfaction of mobile application

In the step of evaluating the performance and satisfaction of the web application, we tested and evaluated the performance of the system by using the Black Box Testing and Questionnaires. There are 10 experts and 30 users that were used to test this web application. Black Box testing was estimated in the error of the project as follows: functional requirement test, Function test, Usability test, Performance test and Security test. The functional Requirement test was evaluated the ability of the system to support the requirements of the users and Functional test was used to evaluate the accuracy of the system. The suitability of the system was tested by the Usability test. Performance test was estimated the processing speed of the system. Lastly, Security test was applied to evaluate the security of the system that proposed in Laurie Williams [7] as shown in Table 1 and Figure 10.

Table 1. The results of the Black Box testing of the system

	Experts		Users	
	$\bar{x}$	SD	$\bar{x}$	SD
1. Function Requirement Test	4.26	0.48	4.72	0.58
2. Functional Test	4.25	0.54	4.59	0.61
3. Usability Test	3.95	0.55	4.67	0.55
4. Performance Test	4.43	0.56	4.44	0.62
5. Security Test	4.35	0.40	4.25	0.52
Summary	4.25	0.51	4.53	0.58

The results of the Black Box testing of the system as shown in Table 1 and the chart is Figure 9 that a quality assessment of the system is good in all aspects and Mean were 4.25 and 4.53 and standard deviations were 0.51 and 0.58. In addition, the authors also test the system in real home mini-aquarium in a period of 10 times. The result shows the performance of this design system as well. Thus, it can be concluded that this mobile application is a good design model of rabbit care recommendation system based on Android application.
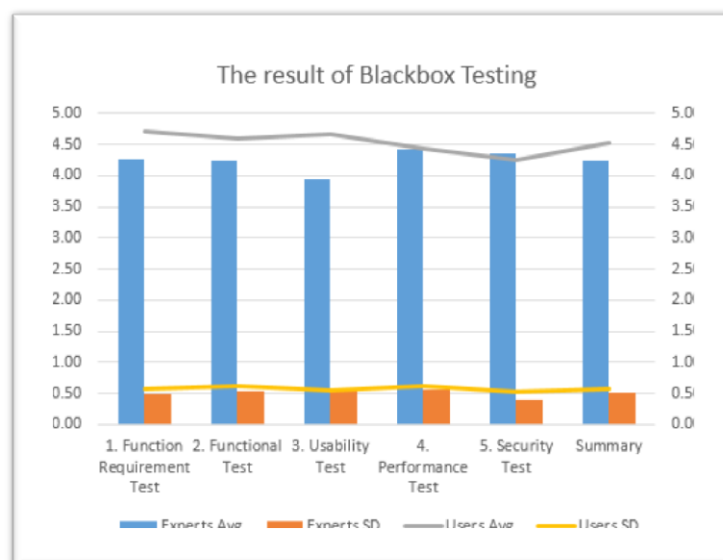

Figure 10. The result of Black box testing

CONCLUSIONS

The work of the design model of rabbit care recommendation system based on Android application, the system was implemented by using Adobe Photoshop CS5, Android SDK, Java, Eclipse and SQL Browser Data software. The system has been tested with the users who are rabbit's farm and normal rabbit owners. This application can display the performance as well and easy to use on the mobile application. Black Box Testing and Questionnaires were used to evaluate the system that estimated both 10 experts and 30 users. The result showed a statistically significant difference of quality assessment of the system is well in all research objectives. It can be concluded that is a good design model of rabbit care recommendation system based on Android application with the mobile application, it is a good way and appropriate to apply in other sectors of animal farm and agriculture of Thailand.

ACKNOWLEDGMENTS

REFERENCES

[1]   Janpla, S. and Kularbphettong, K. (2014). A Development of OTOP Web Application: In Case of Samut Songkhram Province. *World Academy of Science, Engineering and Technology, International Science Index 85, International Journal of Computer, Control, Quantum and Information Engineering*, 8(1), pp. 24 – 26.

[2]   Meethongjan, K., Tachpetpaiboona, N. and Saiper, D. (2017). A Development of 3-D Web application to promote heritage tourism of Surat Thani province. *ICBTS Conference Center & IJBTS International Journal of Business Tourism and Applied Sciences*.

[3]   Chaimanee, S. (2012) *Rabbit Species*. Retrieve from https://web2012.hrdi.or.th/knowledge/detail/1602/rabbit

[4]   Chalermchaikit, A. (2013). *Rabbit Mannaul*. Bangkok: SE-EDUCATION Public Company Limited.

[5]   BOSZE, Zs., HOUDEBINE, L.M. (2010). Application of rabbits in biomedical research: a review. *World Rabbit Science*, [S.l.], 14(1), pp. 01-14.

[6]   Oseni, S.O. and Lukefah,r S.D. (2014). Rabbit production in low-input systems in Africa: situation,knowledge and perspectives – A review. *World Rabbit Science*, [S.l.], 22(2), pp. 147-160.

[7]   Williams, L. (2006). *Testing Overview and Black-Box Testing Techniques*. N.P.: N.P.P.