

## Designing a mobile application platform for customers to receive information service from car service center

Nattavadee Mahanil<sup>1</sup>, Pattarada Rungruang Ph.D.<sup>2</sup>, Nantarat Klinhom<sup>3</sup>, Pratheep Letchaiprasert Ph.D.<sup>4</sup>

<sup>1</sup> Department of Industrial Management Technology, Faculty of Science and Technology

<sup>1234</sup> Southeast Bangkok College, Bangkok, Thailand

E-mail: nattavadee@southeast.ac.th

<sup>2</sup> Department of Marketing, Faculty of Accounting and Management Science

E-mail: pattarada@southeast.ac.th

<sup>3</sup> Department of Business Computer, Faculty of Science and Technology

E-mail: nantarat@southeast.ac.th.

<sup>4</sup> Department of Multimedia and Animation Technology, Faculty of Science and Technology

E-mail: pratheep@southeast.ac.th

**Abstract**— The study of “Designing a mobile application platform for customers to receive information service from car service center” with the objectives as follows (1) Designing of mobile application platform for customers to receive information service from the car service center (2) To study the results of evaluate the design of the mobile application platform for customers to receive information service from the car service center. *The population and samples* used in this study are expert in car service center under TOYOTA and MASDA car manufacturers in area of Samut Prakan and application design expert. The research procedures starting from collecting data relevant information Then analyzed to design mobile application platform with Adobe Illustrator CS6 and then bring it to the experts to evaluate the design quality assessment form of the expert on design of mobile application platform. *Research tools* used in this study are Adobe Illustrator CS6 Program (Used to design mobile application platform) and Design quality assessment form of experts with the design of mobile application platform. *Statistics* used to analyze data are mean and standard deviation. *The results* revealed as follows: the overall quality assessment is at a high level, receiving average of 4.31 and standard deviation 0.55 by dividing it into the content of information that customers want to know from car service center the average 3.84 and standard deviation 0.52 and design and format of mobile application platform, receiving average of 4.38 and standard deviation 0.54.

**Keywords**- mobile application platform, car service center

### I. INTRODUCTION

Due to the car market in Thailand year 2017-2019, In the situation of business recovery. Back in to the last 5 years of the first car project from the Thai

government policy as that time. [1] It was good for both car manufacturers and dealers. It increased revenue from sales, and the dealer also has support factors from continuous revenue after sales service because of the number of first car project at that time. In addition to cars dealer also provide after-sales service with car maintenance from the car service center from car users who have a lifetime in the range not over 5 years. The customer will take care and maintenance of the car performance to be effective while in use. The current car service center business have been spread across the country. They are mostly provide services to car users or on other hand called the customer to make sure that they are all satisfied with the service. One of the important factors that create customer satisfaction is informational factors that regarding the customers to bringing their cars to use the service. It can be considered that the information is what the customer wants to know from the car service center for customer planning in receiving services and from research to study the needs of customers when bringing the car to receive service from the car service center, what are information that customer need to know and receive from car service center. [2]

The studied of customers need when them bring the car came to receive service from the car service center. It was found that the customers would like to know the information from the car service center in 8 areas, follow as 1) Payment information 2) Time information 3) Basic information of car service center 4) insurance information 5) Spare parts information 6) Supplier information 7) process and step of work information and 8) information of car service center contact. The needs of customers would like to know the information in those 8 aspects. In additional, The situation of market and the technology had been changed and developed vary fast this day, also under the fast changing world of the digital era

causing changes in customer behavior and entrepreneurs. Therefore leading to the adjustment of entrepreneurs to create satisfaction for customers in various fields.[3] The research team saw the benefits of developing knowledge to be use in line with the direction of the automobile market business over the next 2-3 years and interesting to bring the technology as Application platform. As adapted and create satisfaction for customers with information needs from car service centers with the concept of designing a mobile application platform to be a convenient service channel. It will be bring faster information to customers and create effectively responding to customers in the current era of digital era.

## II. PURPOSE OF STUDY

2.1 To designing of mobile application platform for customers to receive information service from the car service center.

2.2 To study the results of evaluate the design of the mobile application platform for customers to receive information service from the car service center.

## III. RESEARCH FRAMEWORK

The independent variable is the prototype of the mobile application platform. For customers to receive information service from the car service center.

The dependent variable is the evaluation of the design of the mobile application platform. For customers to receive information service from the car service center.

## IV. LITERATURE REVIEW

### A. Theories

#### 1. Mobile Application

Mobile Application Consists of two words: Mobile and Application. The meaning of Mobile is a communication device used to carry Is a portable device Therefore has a distinctive feature: small size, light weight, relatively low power consumption. The meaning of Application is software that help and support user to work by application must have User Interface or UI to be an intermediary for various applications and Mobile Application is application development for running program on mobile devices such as mobile phones, tablets. The program as mobile application will help meet the needs of consumers. It also supports phone users to use more easily. [4]

Which can be concluded that Mobile applications is a software developed for use on portable devices and a software can make it convenient for users to use.

#### 2. Car service center

Car service center is a business that provides services regarding car maintenance according to the specified

duration of the car, which every 10,000 kilometers of cars should be maintain according to the recommendations and standards of the car manufacturer from the engine system, electrical system, brake system, oil change and filter, adding various liquids. As well as replacing damaged parts to increase safety in use and help reduce accidents from using cars due. [5]

Which can be concluded that car service center is a business that provides inspection services for vehicles according to distance and provide maintenance services. The car service center must be certified to the standard quality from each car manufacturer and car dealer with quality guarantee conditions. Both products and maintenance services to provide customers with confidence in the quality of the car service center.

### B. Researches

Research The study of Designing an application prototype for graduate registration of Southeast Bangkok College. The objectives are 1) To design an application prototype for graduate registration of Southeast Bangkok College. 2) To study the results of evaluating the quality of the application design of experts with the design of the prototype application plat form for graduate registration as Southeast Bangkok College. 3) To study the results of the satisfaction assessment of the prototype application design for graduate registration of Southeast Bangkok College. Tools used in research as 1) Adobe XD CC 2018 program for designing 2) Quality assessment form and 3) Satisfaction assessment form Statistics and data analysis as Mean and standard deviation. The research found that

1) The results of the design quality assessment were at a high level. The overall average is 4.03. The standard deviation is 0.24. 2) The assessment of student satisfaction was at a high level. The overall average is 4.06. The standard deviation is 0.07. [6]

Rresearch, The study of Development and satisfaction evaluation of Muslim restaurant applications in Trang Province on the Android operating system. The objectives are 1 ) To develop Muslim restaurant applications in Trang Province On the Android operating system. 2) Evaluate the satisfaction of using the Muslim restaurant application in Trang Province. The research instrument is the satisfaction evaluation form of using the Muslim restaurant application in Trang. The research found that Applications have the ability to search for Muslim restaurants in Trang. Also, Trang Province can display Muslim restaurant addresses in each district. location And directions to Muslim restaurants The user can connect the map to navigate to a Muslim restaurant.

Overall, the satisfaction was at the highest level with an average of 4.46 standard deviation of 0.67. And the accuracy of identifying coordinates of Muslim restaurants From a total of 46 Muslim restaurants, 40 Muslim restaurants were found to be accurate. 86.96 percent [7]

The research instrument is the study of the development of mobile applications for land transport. The objectives are 1) to study and propose guidelines for the development of land transportation mobile applications of Thailand 2) to allow designers and developers of mobile applications to be utilized in the future By using in-depth interviews with land transport experts and mobile application development experts. The results showed that various factors affecting the design and development of mobile transport applications of Thailand as 1) Transportation factors, land transportation 2) Information technology factors and 3) Mobile applications will affect the efficiency of the use and make the user satisfied with the use of mobile applications in land transport [8]

## V. RESERCH METHOLOGY

### A. Population and Sample

Population is Experts in car service centers and application design.

Sample is using expert in car service center under TOYOTA and MAZDA car manufacturers in SamutPrakan area and application design experts. By purposive sampling to evaluate the quality of the application design platform from 5 people.

### B. Tools

1. Model of Addie Model for use in research [9] the following research steps

1. Analysis The researcher analyzed the process of design and collect information about the information needs that customers want to know from the car service center. To summarize the content of the design mobile application platform.

2. The design after analysis has been designed to rank the work and the desired results.

3. The researcher developed the mobile design platform application for car service center by used information for analysis and has been prepared to designed platform application then used to develop mobile application platform by using Adobe Illustrator CS6 in design

4. Application use after mobile design platform application for car service center then brought it to 5 experts, evaluating the design quality of the mobile application platform and suggestions from experts to improve and summarize the research results

5. The evaluation was evaluated from Evaluate the design quality of mobile application platform and evaluates the results by program.

From the model of Addie Model, The researcher designed and displayed the functionality of the application. As shown Figure1

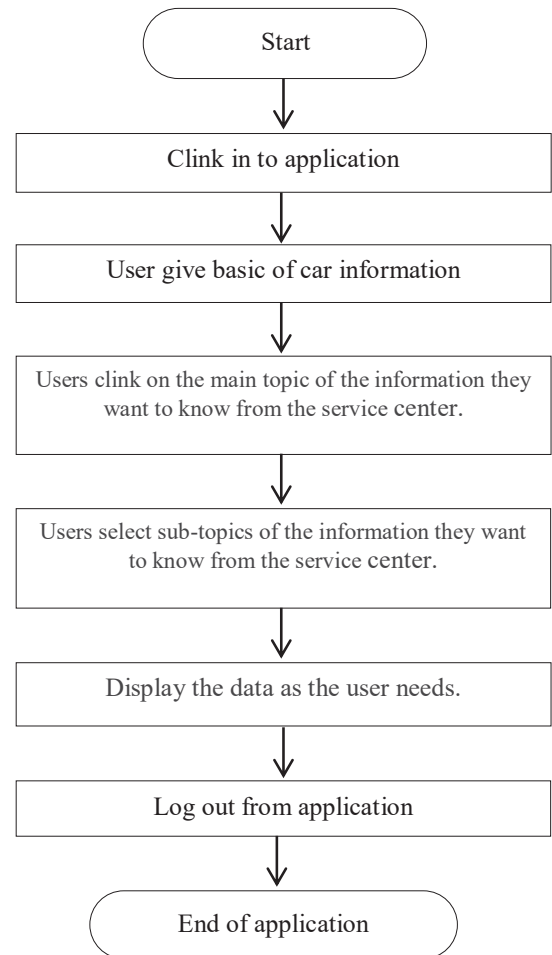


Figure1. Show flow of Application

2. Quality evaluation form for mobile application design platform And analyze data using the software package Statistics for data analysis include ( Mean: M) and (Standard deviation: SD) [10] the average score is a measure based on Best w. john. as follows . [11]

Average	level of satisfaction
4.50-5.00	is Very High
3.50-4.49	is High
2.50-3.49	is Medium
1.50-2.49	is Low
1.00-1.49	is Very Low

## VI. RESEARCH RESULT

Design results of mobile application platform In receiving information services that customers want to know from the center Car service.

1. Screen of car standard information

The quality assessment results for the design of English for tourism book by using multimedia program for learning enhancement outside classroom as assessed by the experts were shown in Table I



Is a screen for users to choose their own basic car information list before entering the main screen in the next order

2. The main application screen



The main application screen for customer to choose the information they want from the car service center.

3. Screen of timing



Screen for users to choose the information that they want to know about the time from the car service center, such as the period of check, mileage, replacement time and etc.

4. Screen of warranty



A screen for users who can choose the information that they want to know about various guarantees from the car service center, such as warranty checks, periodic repairs, and general repairs, etc.

5. Screen of suppliers



A screen for users to choose information about car manufacturers and basic information about employees in the service center

2. The results of the design quality assessment of experts with the design of mobile application platform for customer to receive information services that customers want to know from the car maintenance service center As shown in Table 1

TABLE I: SHOW AVERAGE RESULTS STANDARD DEVIATION AND INTERPRET THE DESIGN QUALITY LEVEL OF EXPERTS

Factors studied	M.	SD.	Validity / Accuracy
<b>1. The content of information that customers want to know from the car service center</b>			
1. Information content is accurate.	4.40	0.84	High
2 . Information content to meet the needs of target customers	4.20	0.45	High
3 . Content of appropriate information to published	3.80	0.84	High
4 . The content of the information that the customer needs to fill out is appropriate.	4.60	0.55	Very High
5. The content of the information covers the needs of the target customers.	4.40	0.55	High
6. The content of the information is clear, concise, easy to understand.	4.60	0.55	Very High
7. The content of the information is useful to the target customer.	4.20	0.45	High
8. The content of the data	3.80	0.45	High

Factors studied	M.	SD.	Validity / Accuracy
is flexible. For future development deployment			
9. The content of the information is not against the law.	4.40	0.55	High
<b>Summary of information content</b>	<b>3.84</b>	<b>0.52</b>	<b>High</b>
<b>2. Design and formatting the mobile application platform</b>			
1 . Design is motivating to use.	4.40	0.52	High
2. The design is consistent with the needs of the target customers.	4.60	0.55	Very High
3 . Formatting and font colors are easy to read clearly.	4.80	0.45	Very High
4 . Good looking graphic formatting	4.20	0.45	High
5. Graphic formatting is suitable for interpretation.	4.40	0.55	High
6. The appropriate data display format	3.80	0.45	High
7. The layout of the category is appropriate.	4.20	0.84	High
8. easy to understand and not complicated to use	4.60	0.55	Very High
9. Connection in every use Screen within the mobile application	4.60	0.55	Very High
10. Benefit if used in actual use	4.20	0.45	High
<b>Design and format summary</b>	<b>4.38</b>	<b>0.54</b>	<b>High</b>
<b>Overall summary</b>	<b>4.31</b>	<b>0.55</b>	<b>High</b>

TABLE I The results of the design quality assessment of experts on the mobile design application platform found that the content of the information that customers want to know from the car service center as mean: 3.84 Standard Deviation: 0.52. When considered and found that there is a factor in the content of the information from the customer fill is appropriate and the content of the information is clear, concise, and easy to understand. High level as mean: 4.60 Follow by Found that the content factors were accurate and the content of the information is not against any law got High level as mean: 4.40 and As for the design quality And formatting the mobile application platform. From overall result mean as 4.38 Standard Deviation: 0.54. When considered Found that the formatting factors and font colors were easy to read clearly with the highest quality level first which mean as 4.80. Follow by Found that the design factors are

consistent with the needs of the target customers How to use, easy to understand, not complicated, and the connection in every use Screen within the mobile application as high level of quality, mean: 4.60 and the overall evaluation results have a very high quality level. This has a mean: 4.31.

## VII. CONCUSSION

From the design of mobile application platform from customer to receive information services that customers want to know from the car service center. Has designed a list of information that customers need to know from the car service center. In accordance with the research on the needs of customers when the car comes to receive services from the car service center (N. Mahanil, R. Pritsalikorn, N. Tanakan, S. Lerdsrichainon, 2018). The research found that Customers need to know all 8 aspects of information. 1 ) Need to know warranty information The average value is 4.10 2) Need to know the cost information The average value is 3.94. 3) Need to know spare parts information The average value is 3.91. 4) Need to know the time information The average value is 3.88. 5) Need to know contact information The average value is 3.87. 6) Need to know information about service centers The average value is 3.80. 7) Need to know the work process information The average value is 3.79. and 8) Need of Demand for supplier information The average value is 3.75 respectively [2] and The results of the design quality assessment of experts with the design of mobile application platform from customer to receive information services that customers want to know from the car maintenance service center Found that the overall evaluation results have a high level as average of 4.31. Which is consistent with the research on the study of the development of mobile applications for land transport By using in-depth interviews with land transport experts and mobile application development experts The results showed that various factors ที่ Affecting the design and development of mobile transport applications of Thailand include 1) Transportation factors, land transport 2) Informational factors ๒๓ 3) Mobile application factors that will affect the efficiency of the use and make the user satisfied with the use of mobile applications in land transport [8]

## VIII. RECOMMENDATION

1. Should develop the application to be use by target customers and study the satisfaction of using the application
2. In addition, should study the needs of customers in other areas of information to be useful in creating satisfaction in the car service center.

## References

- [1] Krungsri Research, Business industry trends of the car industry, : 1-8, 2017. Available From:<https://www.krungsri.com/bank/th/Other/research.html>, 2018.
- [2] N. Mahanil, R. Pritsalikorn, N. Tanakan, S. Lerdsrichainon. A Study of Information customer's need Information when they come to Maintenance service from car service center. The 3<sup>rd</sup> National Conference on Informatics, Agriculture, Management, Business Administration, Engineering, Science and Technology, King Mongkut's Institute of Technology Ladkrabang, Prince of Chumphon Campus, 2018.
- [3] Krungsri Research, Intelligence Industry Research Department, : 1-6, 2018. Available From:<https://www.krungsri.com/bank/th/Other/research.html>, 2018. Taweesak kanjanasuwan (2009) "Multimedia Technology", 1<sup>st</sup> ed. Bangkok: KTP Comp & Consult.
- [4] Applications, Available From: <http://thailand-application.com>, 2018.
- [5] Car service center, Available From: <https://ap.boschcarservice.com>, 2019.
- [6] T. Choachiangkhwang, N. Klinhom, P. Charoenchai. The Design Application Prototype for Graduate Registration Southeast Bangkok College. The 8<sup>th</sup> BENJAMITRA Network National & International Conference From Sufficiency Economy to Sustainable Development, Thonburi University, 2018. Thanin Siljaru (2006) "Research and Analysis of Statistical Data by SPSS". Bangkok: V. Interprint.
- [7] K. Narong, N. Eiso, A. Kongsri, J. Kerdkraikaew. The Development and Satisfaction Evaluation of Trang Muslim Restaurant Application on Android. Economics and Business Administration Journal Thaksin University, Vol. 9 No.1: 26-35, 2016.
- [8] R. Omsinsomboon. Mobile Application Development Studies : The case of public transportation service. Thammasat University, 2016.
- [9] M. Tiantong. Design and development of software for computer lessons. 2<sup>nd</sup> edition, Bangkok: King Mongkut's Institute of Technology North Bangkok, 2005.
- [10] T. Sincharu. Research and analysis Statistical data with SPSS. Bangkok: V. Interprint, 2006.
- [11] Best, John W. (1977). Research in Education. 3<sup>rd</sup> ed. Englewood Cliffs. New Jersey: Prentice Hall, Inc.