# DEVELOPMENT OF MODERN VESPA SERVICE BASED ON ANDROID SMART CASE STUDY BANDUNG PT.SALUYU VESPARIO

Imam Mahdi1, Andri Heryandi2

<sup>1.2</sup> Indonesian Computer University
 Jalan Dipatiukur No. 112 Bandung, West Java 40132
 E-mail: <u>imahdimam@gmail.com1</u>, andri@heryandi.net2

## ABSTRACT

PT. Saluyu Vespario a Regional Distributor of West Java which was established on July 20, 2011 at the Asia Africa no. 156 Bandung, West Java. With its running time and to be able to provide the best service to the users Piaggio Vespa motorcycle, PT. Saluyu Vespario in February 2012 opened a branch in the road Pungkur no. 48 Veteran road no. 61 (Sales). For Pungkur branch, Aria Jipang which is where 3S (Sales, Service and spare part).

In business processes PT.Saluyu Vespario which refers to the 3S services namely Sales, Service and spare part prioritize customer service to meet all kebetuhannya therefore vespa modern smart service applications based on Android is needed to improve the service from PT. Saluyu Vespario, this application there are four excellent features such as:

1. Facilitate consumers in a given schedule routine service and oil changes.

2. Facilitate consumers in making periodic servicing booking.

3. Help find information to consumers in making complaints through smart complaint.

4. Facilitate workshops in consumers with feature track record history.

Based on alpha and beta testing can be concluded that the application meets the criteria a good medium of information that can help consumers loyal PT. Saluyu Vespario and be a plus for the company.

Keywords: Service, Vespa, Android.

## **1. PRELIMINARY**

The development of this mature technology is so rapid, resulting in community activities rely heavily on technology, and information technology development is inseparable from the development of human needs itself, a variety of needs required to give a boost to the power of human thought to develop technologies that can provide easiness in every area of life, organization and business processes that are currently running. To optimize business processes, companies use information technology through the development of applications, where these applications are expected to make a company's

business processes become more efficient, with the nature of technology neutral to facilitate the public to do something that can be profitable and provide convenience to the users of these technologies,

Each company has a business process that is different as well as the PT. Saluyu Vespario Bandung headquartered in Jl. Pungkur 48 Bandung, which became the official dealer for Piaggio Vespa in the city engaged in service sales, service and spare parts. Routine servicing is mandatory by the owner of the vehicle so that the vehicle condition remained excellent, safe, and comfortable. Given service a variety ranging from oil changes, CVT cleaner, injector cleaner, until replacement parts as light as a brake, and other accessories, for motor vehicles, especially scooters matic replacement of engine oil and oil-axle must be done regularly so as not to adversely affect for vehicles, but for vehicle owners who live a large city,

## 2. LITERATURE REVIEW

Adequate care that are fundamental to ensure the operation and optimum performance and durability for the vehicle, therefore, a series of operations maintenance and inspection is recommended to be done. [1]

Regular maintenance is one of the activities required by the plant due to perform maintenance activities on a regular basis will provide many benefits for the owner of the vehicle, namely:

1. Vehicles can avoid the problems (problem) that is larger that may occur in the future so as to reduce the risk of financing the expenditure or greater.

2. Vehicles can be maintained or serviced in accordance with state regulations.

3. Life of the vehicle (life time) will be longer.

4. Vehicle treated periodically maintained its performance remains in excellent condition.

5. Customers (customer) can enjoy a driving experience that is economical and safe.

6. Reduce the risk of things that are not desirable such as a jam, hard-lighted and others.

This is in accordance with the mission of PT. Saluyu Vespario as car manufacturers (Single Agent Brand) Piaggio city of Bandung which have the services 3s (Sales, Service, Spare Parts).

#### **3. RESEARCH METHODS**

The method is performed in data collection in this study are the two methods, the method of collecting data and software development, namely:

- 1. The study of literature, which is the method by collecting references such as reference books, journals and other readings associated with the application title.
- 2. Interview, is one way of collecting data by face to face with some questions to five photographers.
- 3. Questionnaires, is the technique of collecting data by conducting a few questions to users to get results that can be a reference to this research.

Regarding the method used in the software development process by using Lifecycle Classical method, known as the Waterfall. Waterfall diagram the process is as follows:

- 1. Software Engineering (Engineering System) is part of the largest system in the execution of a project, begin by setting the needs of all the elements necessary systems and allocate it to the formation of the software.
- 2. Analysis Software (Analysis System) is a stage to determine whether the activities of engineering systems can be implemented into an information system or not and determine work procedures. As these functions include input function, the function of process and output functions.
- 3. Software Design (Design System) is a stage translation of the purposes or the analyzed data into a form that is easily understood by the user or wearer.
- 4. Software Implementation (Coding System) which implements activities that result from software design into program code that is understandable by the machine language.
- 5. Software Testing (Testing System) is a stage of software testing produced results.
- 6. Maintenance (Maintenance System) Implementation and maintaining overall if the structure changes in terms of both software and hardware.



Figure 1. Waterfall Model Ian Sommerville

## 4. RESULTS AND DISCUSSION

The analysis system can be defined as the decomposition of the main system into sub-systems with the aim to identify the needs required in order to build an application information about services smart services in PT. Saluyu Vespario Bandung.

Based on research done, the problems that occur can be formulated as follows:

- 1. Facilitate consumers in a given schedule routine service and oil changes.
- 2. Facilitate consumers in making periodic servicing booking.
- 3. Help find information to consumers in making complaints through smart complaint.
- 4. Facilitate workshops in consumers with feature track record history.

Analysis of system architecture aims to identify the architecture to be built. Here is a system architecture of applications to be built:



**Figure 2. System Architecture** 

Below is a description of the system architecture of mobile platform applications to be built:

- 1. Android device users to request data to the server via the Internet.
- 2. Web server receives a request data and processed by the web service.
- 3. Web services make requests to the database in the form of a query to retrieve data.
- 4. Once the web service receives a response to the requested data, the data will be sent to your android device users to process data in the form of JSON.
- 5. Once processed, the data will be sent to the user according to the request requested by the user.
- 6. Android device users receive a JSON response from a web service and do the parsing process to represent the data received.

Analysis on systems currently running in the garage PT. Saluyu Vespario is the customer comes directly to the garage with workshop admin handed to the vehicle registration to enter data such as vehicle service invoice image below.

COARD PT. SALUYU VESPARIO				INVOICE SERVICE			
	II. Puegkur ND. 48 Ph: +62225201925 [ JI.	Prambudimuntur	No. 24 Pi	+6222421	0987		
					R18103	1985000000	
VIN	RP8M66500DV00381.7	Srv Advisor GLA		GLAR	LAR		
Nama	RUDY MAHARDIKA	No Polisi D 2486 U		/BC			
Telepon	3217102605570002	Ponsel					
Alamat	KP. CIGUGUR RT 02/02 MARGAASIH						
Nodel	(LX 150) LX 150	Teknesi	YEPI				
Tipe	LX150	Tahun		2013			
Kode	Sparepart	QTY	ŀ	Harga Disc%		Total	
Kode	Jasa	Flat Rate	Lab	or Rate	Disc%	Total	
PADS	CEN FADS	1,00		100.0	00 0,00	100.000	
Kode	Material	QTY	ł	larga	Disc%	Total	
Motor yang tidak diambil dalam waktu 1x24 jam dikenakan charga penimpan Motor per-han kecuali atas ACC Service Advisor Bengkel,		Total Spareparts				0	
		Total Jasa		100.000			
		Total Material			0		
Barang yang sudah dibeli tidak bisa ditukar atau dikembalikan.		Total		100.000			
DIBUAT OLEH		Pernyataan Pelanggan:					
Kamis, 04 Oktober 2018		Perbaikan dan penggantian suku cadang tersebut di atas					
		dilakukan ata: perbaikan dar dimengerti de	perset pengga ngan ba	ujuan saya Intian ters Ik. A	Binya yang t ebut telah diji	imbul akibat elaskan dan	
	1.19	A	tun yes	HARDIKA			
* Garansı perbaika	in berlaku hingga 7 hari setelah selesai pekerji	tan c	Sx.	1			
Pemb.	ayaran dapat dilakukan melalui Bank CIMB Nu	4GA, No. 205(D):	01.030.0	OŚ a/n PT.	SALUYU VESP	ARIO	

**Figure 3. Invoice Service** 

Schedule regular service on motor vehicles is very important to maintain the condition of the vehicle remains in top shape, and therefore the manufacturer has set a schedule for periodic servicing their vehicle at the vehicle owner's guide.

EM r 1000 stan (Bulan) Makeimum	1	5	10	15	20	25
KNI X 1000 alau (Bulan) Maksimum	(1)	(5)	(10)	(15)	(20)	(25)
Alat Pengunci Keamanan						
Busi			R	- 1	R	1
Kartrij Filter Udara			С		С	
Braket Standar Tengah		L	L	L	L	L
Sabuk Kemudi (125 cm*)					R	
Sabuk Kemudi (150 cm*)			R		R	
Kontrol Gas	A		A		A	
Dudukan Roller					1	
Filter Udara					Ι	
Filter Oli Mesin	R		R		R	
Celah Katup	A		A		A	
Sistem Kelistrikan & Aki				- 1	1	
Sistem Ventilasi Silinder						
Tuas Rem	L		L		L	
Cairan Rem **						
Oli Mesin*	R		R		R	
Oli Hub						
Penyetelan Arah Lampu Utama			A		A	
Bantalan Rem						1
Tekanan & Keausan Ban						
Uji Jalan Kendaraan						1
Roda Gigi Odometer			L		L	
Suspensi						
Kemudi	A		A		A	
Catatan:						
I : Perikasa & Bersihkan, Setel, Lumasi atau Ganti Jika Diperlukan						
C : Clean (Bersikan)						

Table 1. Table Periodic Maintenance

From Table 1 it can be seen the time when the vehicle should perform periodic servicing, research conducted by the author using the method of time, by selecting the date of upcoming service that has been set by the last workshop periodic servicing notification will automatically appear as a reminder / reminder to owners of vehicles in accordance with a predetermined time, in accordance with the Book Manual ynag listed as follows: "your vehicle must be serviced according to the interval of time that has been set, although it has not reached KM specified distance."

Use case diagram is a model for the behavior (behavior) information system that will be created. Use Case describes an interaction between one or more actors with the information system will be created. Here is the use case diagram ynag will be made:



Figure 4. Diagram Usecase

This is an actor descriptor table of the use case diagram.

Table 2. Description Actor

No.	Actor	Description		
1	Customer	The actor has the authority to register an account, do forget the password, make booking service, change the profile, perform complaint condition of the vehicle, looking for spare parts, changing the order of spare parts, remove the spare parts orders, add orders of spare parts, and to log out.		
2	Admin Workshop	The actor has the authority to register an account, confirm booking service, change the profile, add product data, change data product, remove the product data, specify the service schedule reminders, add vehicle condition data, changing the vehicle condition data, vehicle condition data		
3	Admin System	The actor has the authority to make change a profile, add training data, delete the training data, changing the training data.		

Here is an activity diagram which is the user account registration of user activity



Figure 5. Activity diagram Customer Account Registration

Next create a class diagram or class diagram illustrates the structure of the system in terms of defining the classes that will be created to build the system, the so-called class has attributes and methods or operations [3]. Here's a class diagram of the application to be made.



Figure 6. Class diagram

Sequnce diagram illustrates the behavior of objects in use case by describing the life time of the object and the message sent and received between between objects [3]. Below is a sequence diagram listing the customer account:



Figure 7. Sequence Diagram

Here is a scheme of the relation of the application to be made:



Figure 7. Sequence Diagram

The next stage is the stage of testing the system in applications that are built. This stage is the most important thing that aims to find errors or deficiencies in the application being built. This test is intended to determine whether the application is made have met the criteria in accordance with the purpose of designing an application or not. Tests on the application system will use the test strategy, test alpha (black-box) and beta testing. Alpha testing is done using black-box method that focuses on the functional requirements of the software. Testing the program uses black-box method.

Black-box testing is a program based on functional testing of the program. The purpose of this black-box method is to find a malfunction in the program. Testing with black-box method is done by providing a number of data input to the application which is then processed in accordance with the functional needs to see whether the application is then processed in accordance with the functional needs to see if the application produces output that is used and in accordance with the functions of the program. If the input data supplied from the process of generating output in accordance with the functional needs, the application has been made has been correct. But if the output produced does not match the functional needs, then there is still an error in an application.

Testing is done by trying all possibilities occur and testing is done repeatedly if the test found an error it will do a search or repairs to correct an error. If you have finished doing repairs, it will be done continuously in order to obtain the best results. Plans alpha testing will be done on this software can be seen in Table Alpha Test Plan as follows:

class Test	Testing points	types of Tests
Login	Input data log	Black Box
Login	Data validation log	Black Box
	Input registration	Black Box
	data	
register	Registration data	Black Box
Account	validation	
Account	Saving the	Black Box
	registration data to	
	the database	
	Input data forgotten	Black Box
Forgot	Data validation	Black Box
the	forget	
password	Storing data forget	Black Box
	to database	
	Input your keyword	Black Box
Search	data	
for spare	Data validation	Black Box
part	keywords	
F	Displaying data	Black Box
	spare parts	
	Input data booking	Black Box
booking	Data Validation	Black Box
service	booking	
	Storing data to get	Black Box
~	into the database	
Complai	Complai Data Input	
nt	complaint	

Table 3. Scenario Testing

	Data validation	Black Box
	complaint	
	Showing	Black Box
	recommendation	
	Input order data	Black Box
Adding	Validation of order	Black Box
Order	data	
Oldel	Store order data into	Black Box
	database	
	Input order data	Black Box
Delating	Validation of order	Black Box
Orders	data	
Orders	Delete the order	Black Box
	data in the database	
	Input order data	Black Box
Changin	Validation of order	Black Box
changin g Orders	data	
g Olders	Changing the order	Black Box
	data into database	
	Input profile data	Black Box
	Validation of the	Black Box
Changin	profile data	
g profile	Changing the	Black Box
	profile data in the	
	database	

#### 5. RESULTS AND DISCUSSION

Blackbox Testing Results Conclusion Based on the results of testing that has been done, it was concluded that all processes on the Service Application Smart Vespa has been running as expected.

Based on test results and discussion that has been created it can be concluded that:

1. Facilitate consumers in a given schedule routine service and oil changes.

Advice can be given to the development of smart services vespa application are:

- 1. Smart Complaint To be more specific by using a more precise method.
- 2. For an oil change and a reminder feature and servicing schedule to be further improved by using automatic notifications.

#### BIBLIOGRAPHY

- [1] NS H, ANDROID: PROGRAMMING MOBILE APPLICATIONS BASED SMARTPHONE AND TABLET PC ANDROID, Bandung: Bandung Informatics, 2012.
- [2] I. Sommerville, Software Engineering, 6th Edition, Jakarta: Erland 2003.
- [3] Rosa A. S, M. Shalahudin, Software Engineering and Object-Oriented Structured, Bandung: INFORMATICS 2013.

- A. Nugroho, Analysis and Design of Information Systems with Object Oriented methodology, Bandung: Informatics, 2015.
  M. appendices, "Software Testing Method Based Black-Box Equivalence," 2016. [4]
- [5]