Car and Motorcycle Washing Service with Home Washing and Pick up Service Washing Based on WEB at RAN Carwash

Gifari Ahmad Fauzan[*1], Ariyani Wardhana[*2]
Mercubuana University
Jl. Meruya Selatan, Kembangan, Jakarta Barat

Abstract

Along with the development of technology and information, various service providers are competing in improving the service, both system and service process. It is a must considering the many business competition in the field of services, from small service, medium and large competition. All of them must have innovation as the selling point, especially in the field of vehicle washing. Increased sales of motorcycles and cars are making more and more carwash service providers, especially in tropical climates, in the rainy season making the demand for vehicle washing services increasing as well. The number of requests is also based on the busyness of everyone who is required to do a lot of doing many activities at one time. Very unfortunate number of activities performed in one time that one of them only to wash the vehicle.

Keywords — *carwash, home service, pick-up service, web.*

I. INTRODUCTION

RAN Carwash is a car and motorcycle washing service operating since 2014. Located in Ceger, Tangerang, Indonesia. The car and motorcycle washing service is very potential to improve the quality of services supported by the utilization of technology.

Especially in this era of globalization, technology and information is growing very rapidly. Not only companies or organizations that have held big names, small and medium companies also have an average system that is not less good than large companies. That's because of the demands of life that allow each individual to save time remembering the many routines that are done every day.

A clean vehicle may reflect a clean personality for its owners and increase the age of the vehicle from rust due to acidity or acid rain. However, time constraints for car owners and motorcycles make the lack of spare time just to do vehicle washing, so a lot of car and motorcycle owners think twice to wash or perform more important activities.

Therefore, a system is required that allows car and motorcycles owners to perform essential activities without wasting time in going to a vehicle wash so the author has got the idea of the problem.

The idea is the design of carwash and motorcycles system with Pick-up service washing and home-based web service washing features. That is made to facilitate the washing of vehicles only by ordering type of service through the web, either from Personal Computer or Gadget that support browser applications.

Business in this field is also very profitable considering the vehicle is an object that is needed to facilitate everyone to transport anywhere. Because cars and motorcycles are things that are often used to transport, the vehicle will be dirty with the intensity of its use. That is why business in this field is very promising.

II. LITERATURE REVIEW

A. Delivery Service

Delivery Service is a service system shuttle service or goods with a third person as an intermediary in order to achieve these services.

The shuttle service or system has come home to have been treated and has attracted academic and industry interest for decades: the first patent we found on "methods and equipment to validate credit information during home delivery orders" (1993) was registered in 1991 by Jerry R Martinez. In contrast, in the academic world, Cairns S. (1996) published a scientific writing exploring the experience of providing a shuttle service to groceries at the time. The study involved 58 companies, operating in 9 countries, exploring the practical and economic dimensions of providing services, predicting possible future safeguards, and factors that may be conducive to successfully introducing new initiatives. Furthermore, Alba J. et al. (1997) examines the implications of electronic spending for consumers, retailers and manufacturers on the assumption that short-term technological developments will offer consumers an unparalleled opportunity to locate and compare product offerings (Maliheh, Giovanni, Teodoro 2016: 1371).

From the patents, research and implication of the above statement, it is evident that the prediction of delivery service system is very useful in the decades after the research, and even onwards.

B. Website

Website is the entire web pages contained in a domain that contains information. A website is usually built on many interconnected web pages. So it can be said that, the website is a collection of pages. which is used to display text, silent or motion images, animations, sounds and or all of them, both static and dynamic, forming a series of interconnected buildings, each associated with a network of pages (Riad, Liana 2016: 118).

C. Service Quality

Kotler in Januar (2007: 286), said that the quality of service is a way of working the company trying to hold continuous quality improvement to the process, products and services produced by the company.

D. Carwash

Car wash industry is growing as the technology grows. Starting from the payment system up to automatic washing using robot hands.

This is the development of car wash from simple washing to car washing using technology.

1. Prior to 1946 automobile washing was done manually, starting in 1914 using human power to move the car during washing. After that, semi automatic car wash operation using automatic pulleys and manual manual using brushes in Detroit, United States.

2. Lots of things happened to the car wash industry in 1955, and Hanna was inspired by the Detroit Carwashes through automated Rub-a-Dub car washing in Oregon. In the same year the professional car wash Automat Carwash Association (ACWA) and recognized the world, which was re-designated to the International Carwash Association (ICA).

3. In the early 1960s mechanical car wash systems purchased throughout America. With more advanced car wash equipment with air circulation system, wash cloth with a soft sweep, carrier roller and a cover brush.

4. In 1970 there was a decline in automobile washing machines with the weakening global economy. With car sales going down and costly fees, the car's fading needs.

5. The mid-80s again improved the economy and car sales at the same time with 162 million cars in the US alone. Australia and see achievements by car washes across the country. In the late 80s there was automatic washing in 56 countries including Australia.

6. There was a global explosion in car washes of the 90s with emerging technologies in China, Russia and Eastern Europe.

7. Year 2000 washing cars evolved into travel for people especially on Saturdays and manual car washes where the washing was done with manpower became additional work at the end of the pecan. The ICA has estimated that there are about 22,000 cars worldwide with around 500,000 people (Auto & General Services Pty Ltd, 2013).

III. RESEARCH METHOD

A. Prototype

Prototype is a software development method in the form of physical model of system work and serves as an early version of the system (Ogedebe et al, 2016).

Creation of a Prototyping for system developers aims to gather information from users so that users can interact with prototype models developed, because the prototype describes an early version of the system for the continuation of larger systems. Ogedebe (2012), asserted: It has been found that in the analysis and design of the system, especially for the transaction process, where the dialogue shown more easily understood. The greater the interaction between computers and users, the greater the benefits gained when the process of developing information systems will be faster and make users more interactive in the process of development. Prototyping can be applied to the development of small and large systems in the hope that the development process can run well, organized and can be completed on time (Dwi, 2017: 55).

Prototype method in the development of this system is considered very suitable because the service that utilizes the technology needs an approach to answer customer needs.

B. Interview

Interview is a data collection technique with interaction between two or more people where the process is question and answer to get real result.

In an interview conducted at RAN Carwash with 100 participants of car users with questions and answer options as follows:

"Is there a need to build a car wash system with pick-up service and carwash home service with a lot of people activities now?"
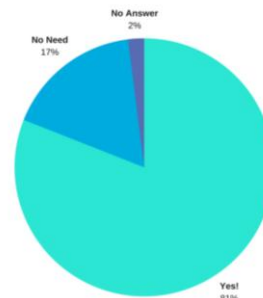
1. *Yes!*
2. *Don't know.*
3. *No need.*

Fig 1. Interview Result

A total of 81 people answered "yes, necessary", as many as 2 people answered "Do not know", and 17 others answered "No need" with each answer has various reasons.

So it is concluded that many people who need this carwash service.

IV. RESULT AND DISCUSSION

A. *Result of application plan to be made*

Basically this application is the same as car wash and motorcycle in general, that is as service provider to clean vehicle from dust and dirt during usage. However, by utilizing RAN Carwash technology can further pamper its service users with 2 fitus as follows.

1) *Home Service*

This feature allows users of cars and motorcycles to conduct vehicle washing at home. With the availability of water as a mediator for cleaning and electricity as a mediator of operation of water compressor and vacuum cleaner.

RAN Carwash workers will visit the homes of customers who have booked through the RAN Carwash site with carrying washing equipment.

2) *Pick-up Service*

This feature allows users of cars and motorcycles to wash, by way of customer vehicles will be picked up from home and wash in RAN Carwash.

RAN Carwash workers will pick up the vehicles of customers who have booked through the RAN Carwash site and wash in RAN Carwash, then returned to customers when the vehicle is clean.

B. *Analysis of System Requirement*

This application is made to improve the quality of car and motorcycle wash services at RAN Carwash. This app is built on a web-based basis because the web has the flexibility in user interaction that is easily run on any operating system as long as it has a browser application.

In the analysis of this system, the design will be made with prototype method and data collection through direct interview with RAN Carwash customer who still performs a conventional car and motorcycle washing. The use of prototype method is considered very suitable for building this application because the system developers will more easily understand the needs of users. Because system developers will more easily understand the needs of users, then the data collected must be done in real with interview techniques.

The output of this application is as follows.
1. Daily booking report
2. Transaction report
3. Work Order for RAN Carwash workers
4. List of RAN Carwash workers availability
5. User criticism and suggestion forms for RAN Carwash services

C. *System Design Phase*

System analysis should be done before system development using UML such as class diagrams, sequence diagrams, and use case diagrams. Mock up display of website created after UML analysis phase is complete.
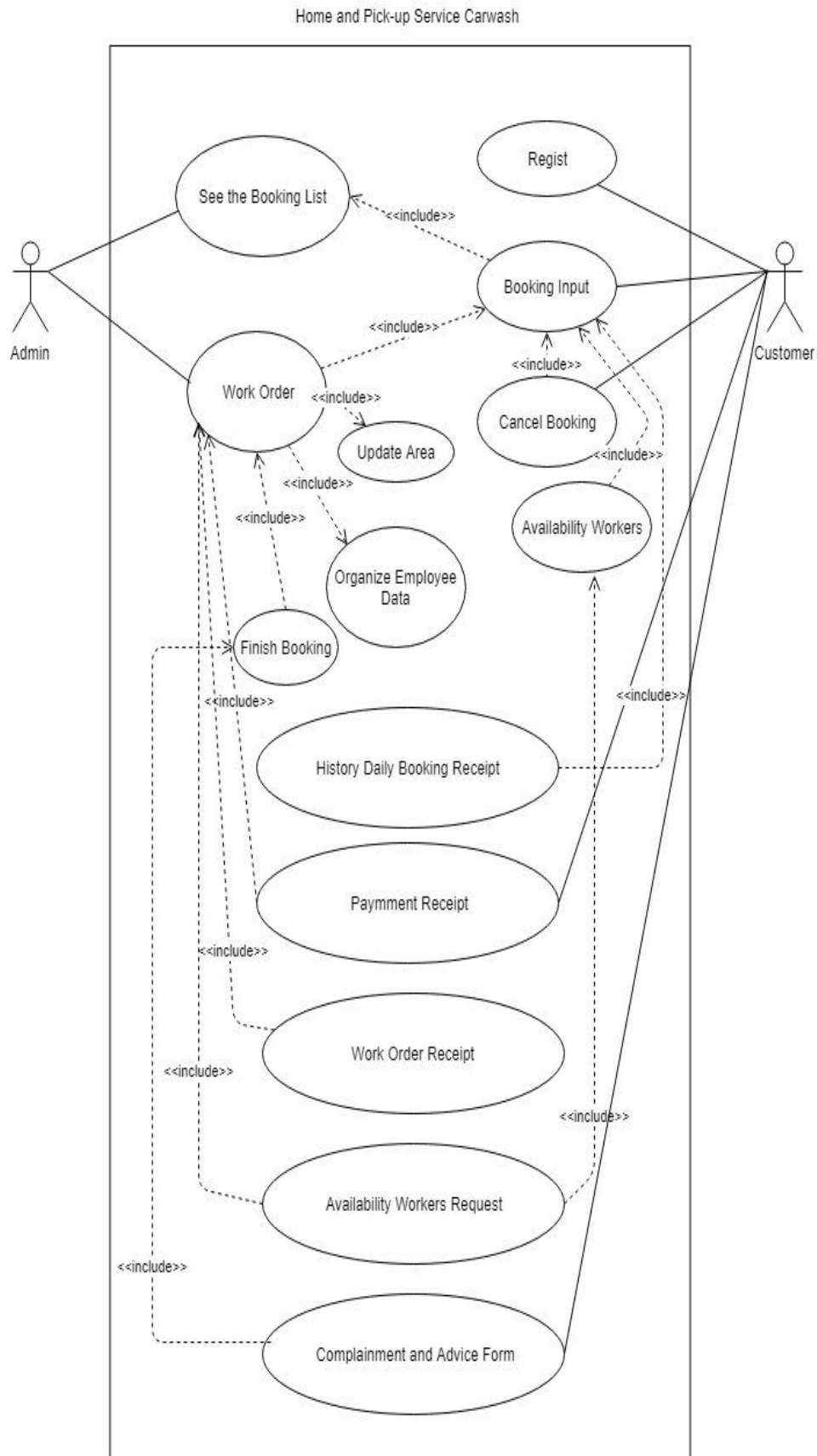
Home and Pick-up Service Carwash
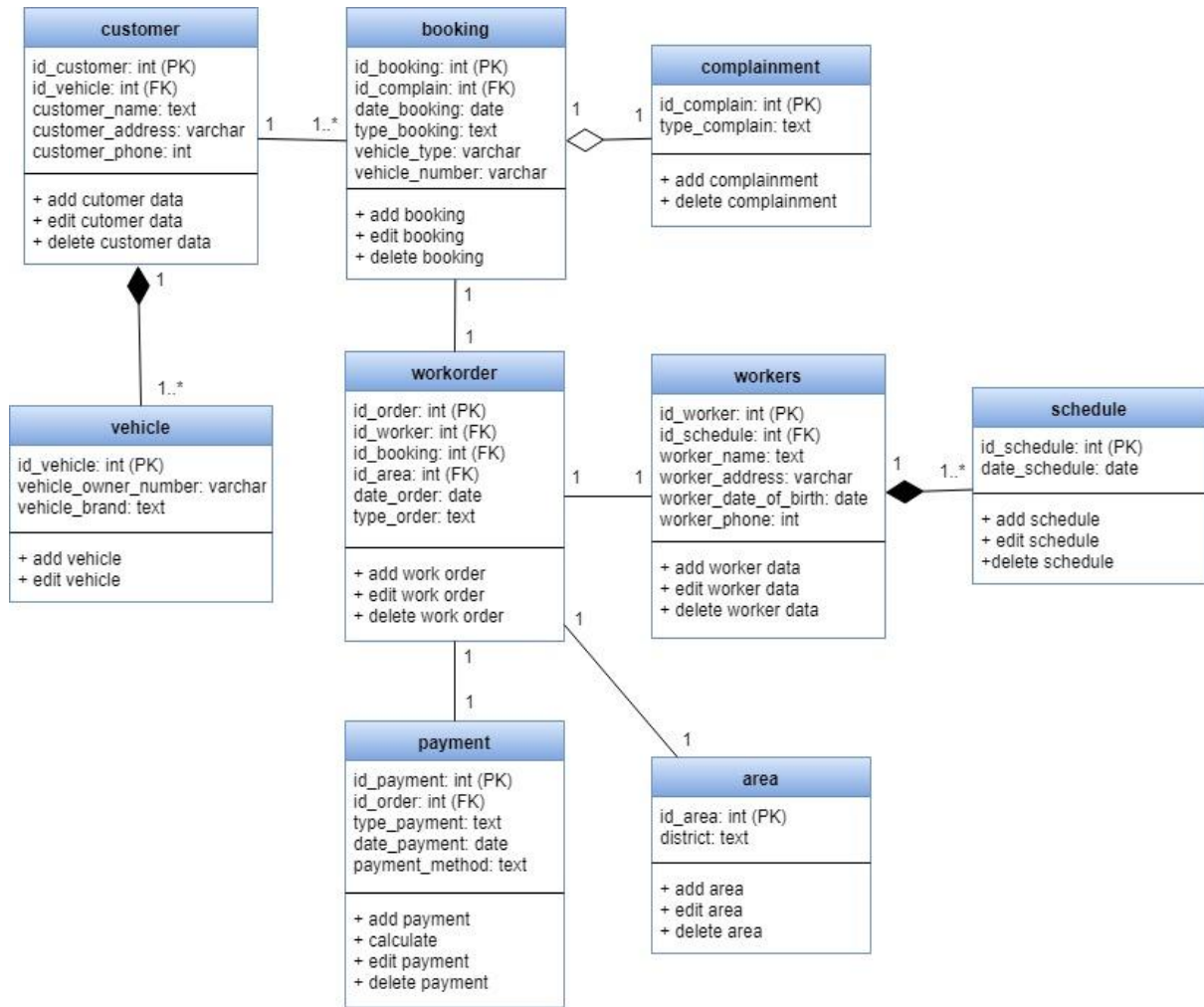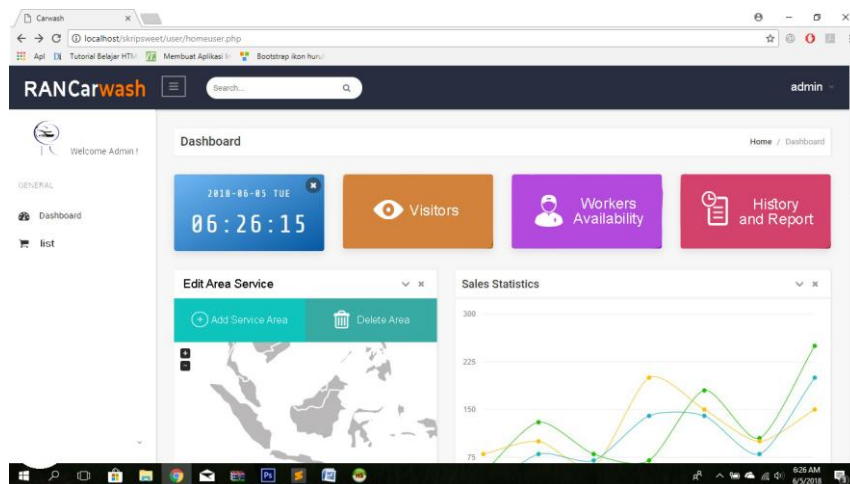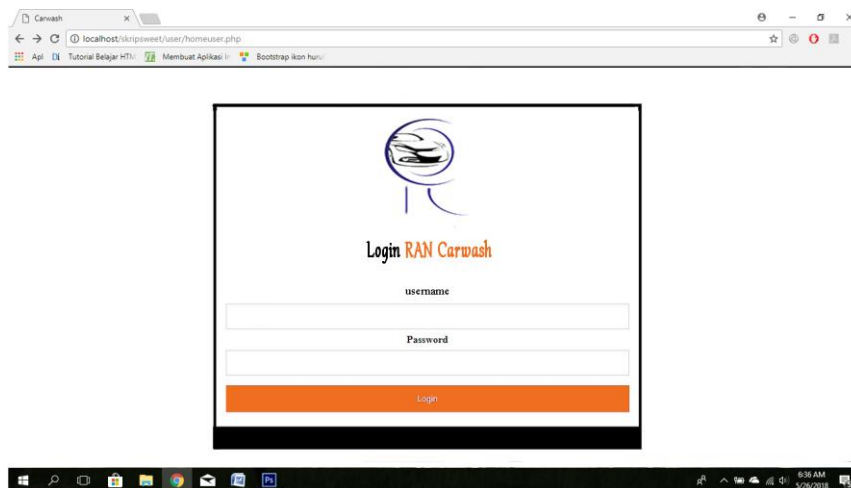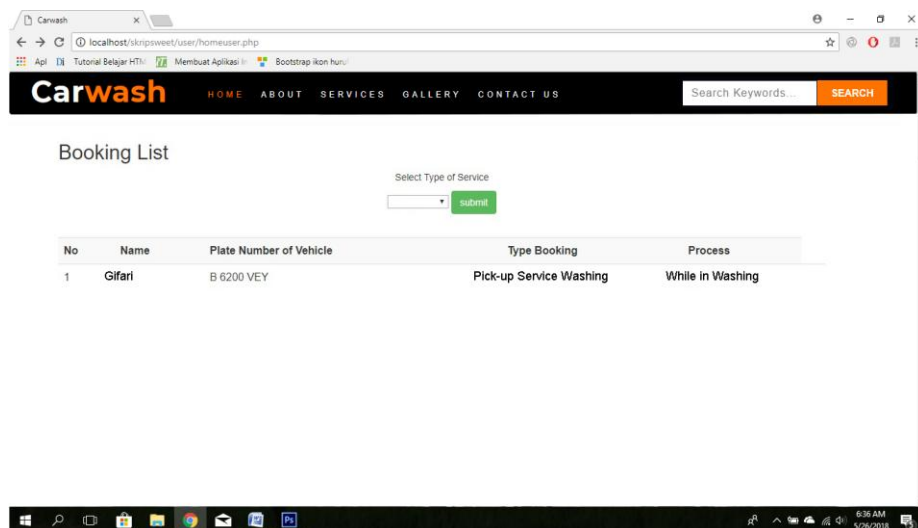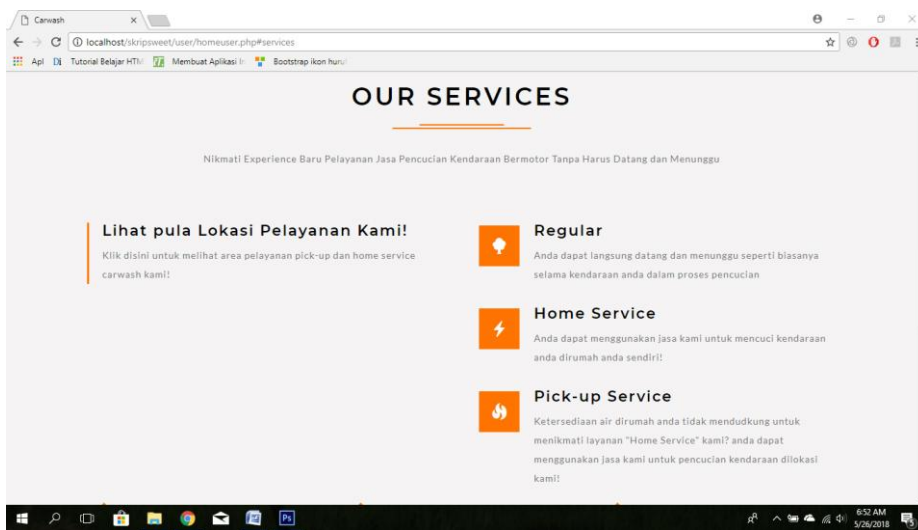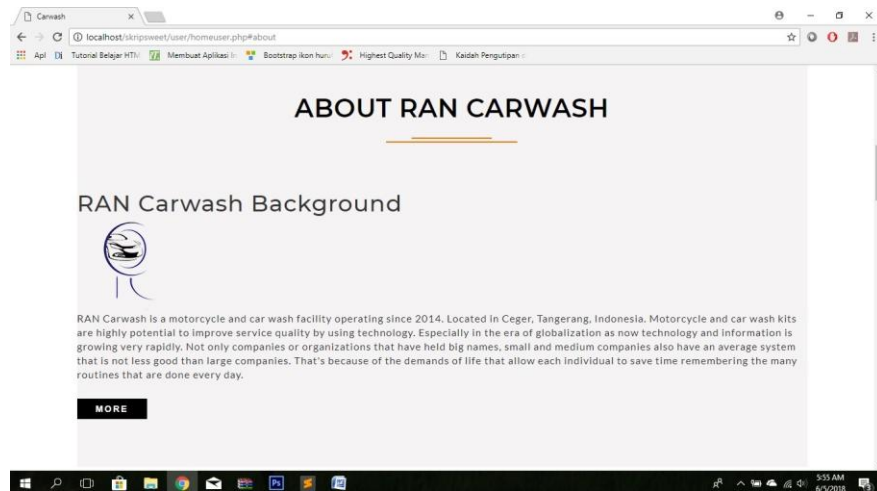

Fig 2. Usecase Diagram

Fig 3. Class Diagram
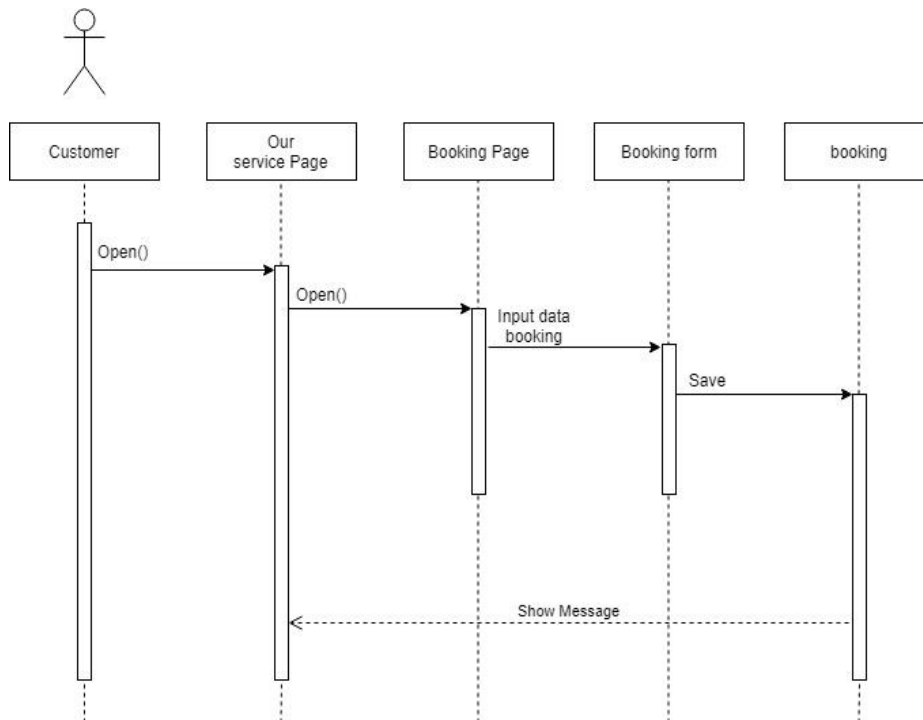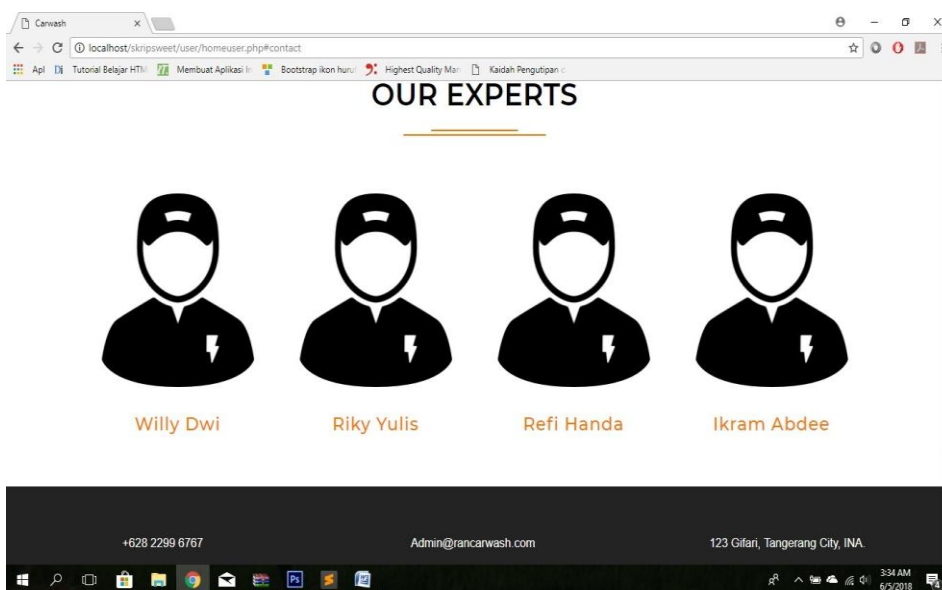

Fig 4. Sequence diagram

D. Admin Prototype Design
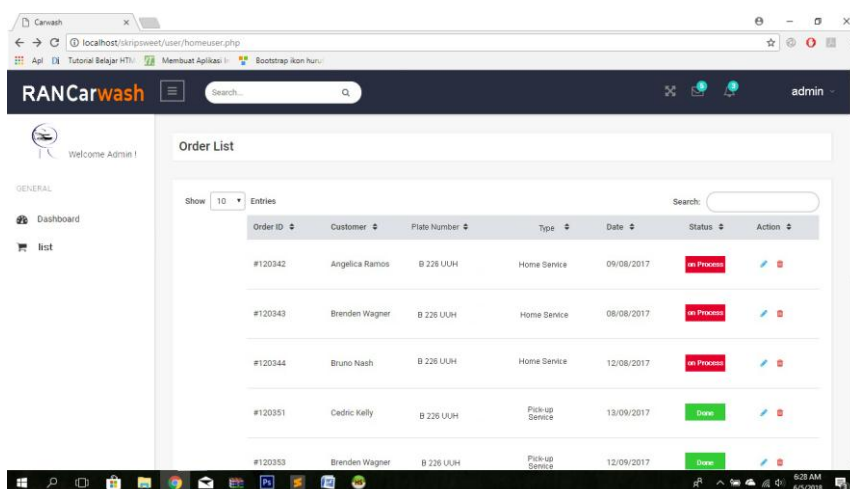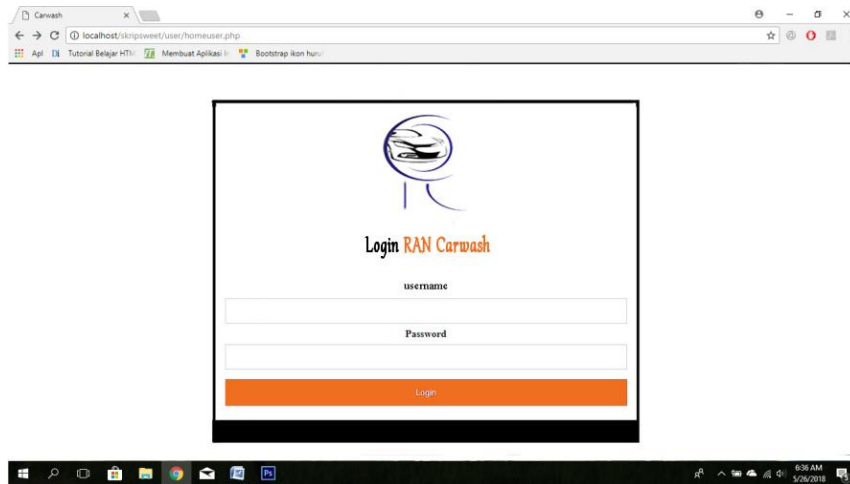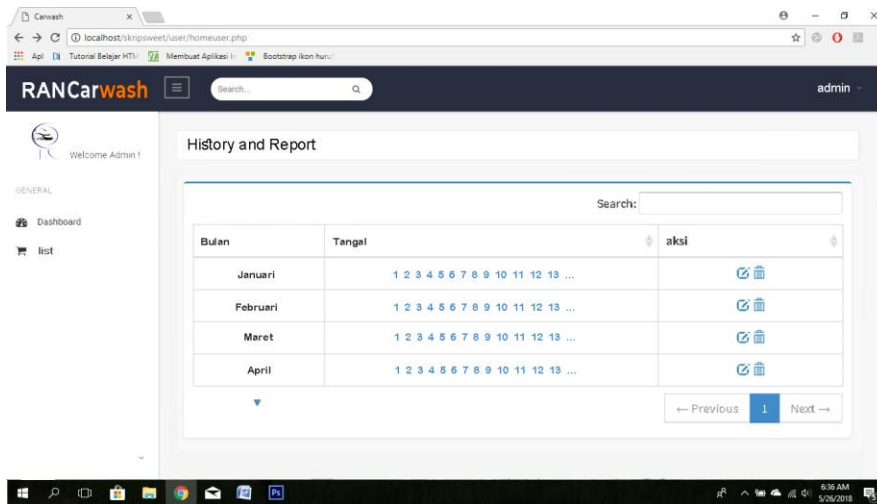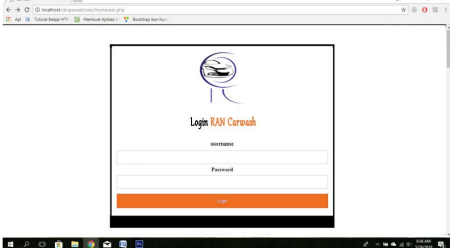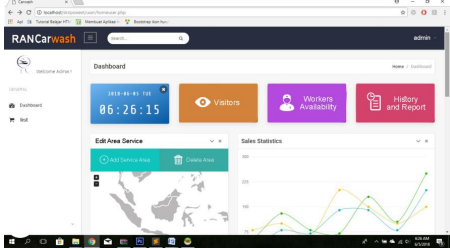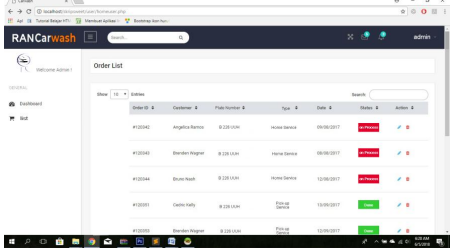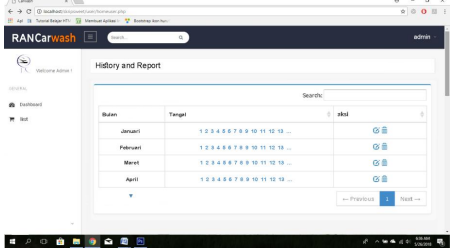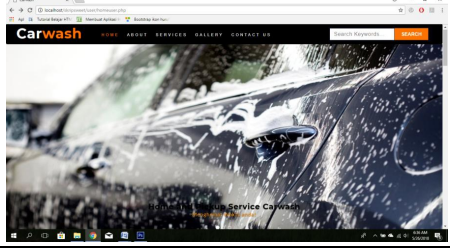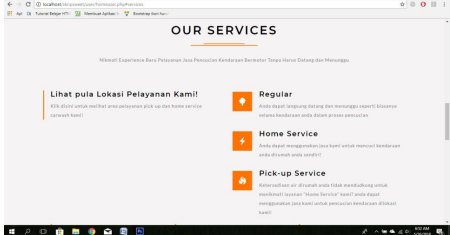
E. User Prototype Design
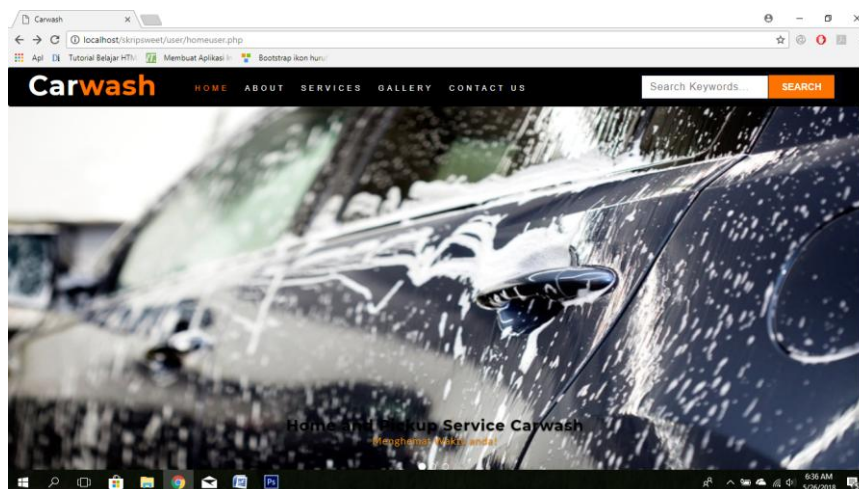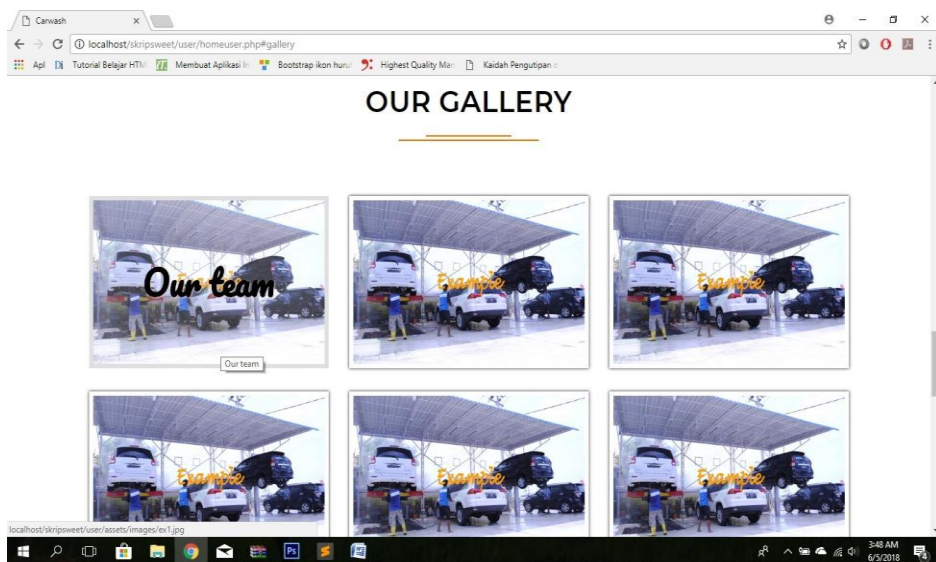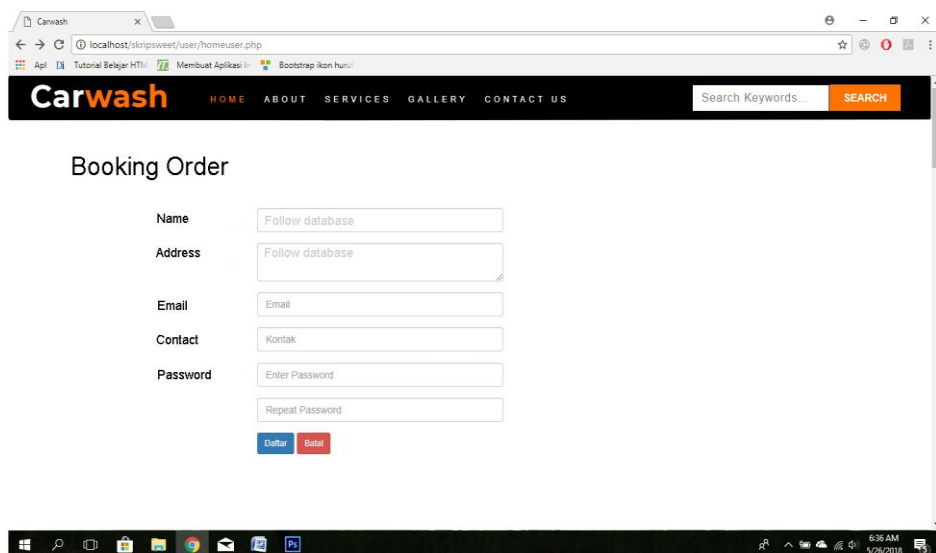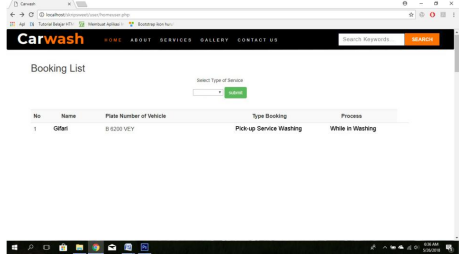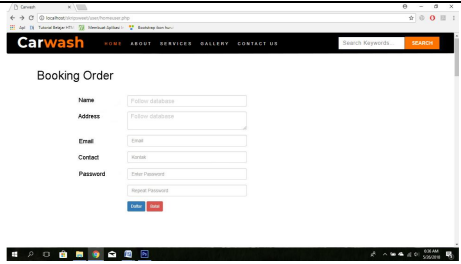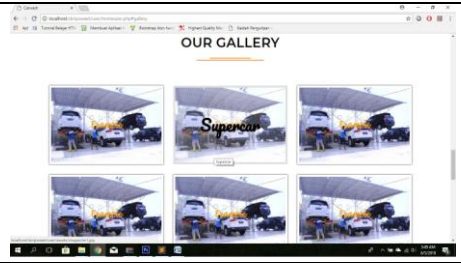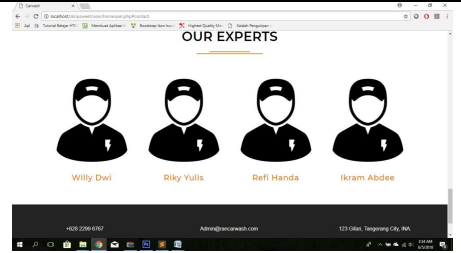
F. Scrum Blackbox Testing

No	Purpose	Test Example	Expected Result	Will be tested by	Testing Date
1.	Form of login System		Admin or user can login in same page form	Gifari	
2.	Dashboard admin, running when admin login system		Admin can control and monitoring all process	Gifari	
3.	See on going services process by admin		Admin can monitoring, cancel process and edit process	Gifari	
4.	See the booking history and report		Admin can see the history booking and report	Gifari	
5.	Home user, running when user login system		This page is loaded when the user has logged in	Gifari	
6.	Option of service type		User can select the desired service type and view the enabled area	Gifari	

7.	See the booking list process by user		User can view ongoing process	Gifari	
8.	User booking service		User can book their chosen service	Gifari	
9.	Contains photographs of the washing process, workers and etc,.		Users can view a photo galleries of places, services, super cars that use the services of RAN Carwash and others	Gifari	
10.	Workers who serve home washing and pick-up service washing		User can know the identity of the workers	Gifari	

G. Database Spesification

customer

No.	Field Name	Data Type	Size	Explanation
1	id_customer	Int	25	Primary Key
2	id_vehicle	Int	25	Foreign Key
3	customer_name	Char	30	
4	customer_address	Varchar	50	
5	customer_phone	Int	20	

vehicle

No.	Field Name	Data Type	Size	Explanation
1	id_vehicle	Int	25	Primary Key
2	vehicle_owner_number	Varchar	15	
3	vehicle_brand	Char	15	

booking

No.	Field Name	Data Type	Size	Explanation
1	id_booking	Int	25	Primary Key
2	id_complain	Int	25	Foreign Key
3	date_booking	Date	-	
4	type_booking	Char	15	
5	vehicle_name	Varchar	15	
6	vehicle_number	Varchar	15	

complainment

No.	Field Name	Data Type	Size	Explanation
1	id_complain	Int	25	Primary Key
2	type_complain	Char	25	

workorder

No.	Field Name	Data Type	Size	Explanation
1	id_order	Int	25	Primary Key
2	id_worker	Int	25	Foreign Key
3	id_booking	Int	25	Foreign Key
4	id_area	Int	25	Foreign Key
5	date_order	Date	-	
6	type_order	Char	15	

worker

No.	Field Name	Data Type	Size	Explanation
1	id_worker	Int	25	Primary
				Key
2	id_schedule	Int	25	Foreign Key
3	worker_name	Char	30	
4	worker_address	Varchar	50	
5	worker_date_of_birth	Date	-	
6	worker_phone	Int	20	

schedule

No.	Field Name	Data Type	Size	Explanation
1	id_schedule	Int	25	Primary Key
2	date_schedule	Date		

payment

No.	Field Name	Data Type	Size	Explanation
1	id_payment	Int	25	Primary Key
2	id_order	Int	25	Foreign Key
3	type_payment	Char	20	
4	date_payment	Date	-	

area

No.	Field Name	Data Type	Size	Explanation
1	id_area	Int	25	Primary Key
2	district	Varchar	25	

H. Device Spesification

The minimum specification PC / Laptop to build this application, as follows:

Hardware:
- duo core processor.
- Ram 2gb.
- Hard disk minimum 100 GB.
- 12 inch monitor.

Minimum software to build this application, as follows:
- Windows XP OS.
- Browser googlechrome, Opera, etc.
- MySql database system.
- PHP programming language, Java web, ruby on rails and other programming languages that support the creation of web-based applications.
- Sublime text, notepad ++, dreamweaver, etc.

V. CONCLUSION

From the discussion that has been done, it can be drawn some conclusions as follows:
1. RAN Carwash Applications is an application that utilizes internet technology as an

enhancement of customer service to its customers.

2. Features Home Service and Pick-up Service on RAN Carwash is designed to facilitate car and motorcycle users does not waste time waiting to wash the vehicle.

3. Utilization of Home Service and Pick-up Service feature in RAN Carwash can only be enjoyed in certain area coverage because RAN Carwash has not owned business branch elsewhere.

VI. ADVICE

Business in the field of vehicle washing services is very profitable, especially by utilizing technology as a support to improve service to customers expected expectations can be achieved easily. However, there will be many other vehicle washers that will follow the service delivery service like this later. Consequently, consistent maintenance and consistent services are required to continue to compete with competitors.

Training programs are also needed for workers to adapt to new systems and direction to maintain customer trust and consistency in working on jobs.

REFERENCES

[1] Denis, Alan., Wixom, Harley Barbara., Tegarden, David., (2015). System Analysis and Design 5th Edition. New Jersey: John Wiley & Sons, Inc.

[2] Nugroho, Andi., Setya, Wulandari Retno.,. (2016). Pengelolaan Presensi dan Gaji Asisten Lab berbasis Web di Fasilkom Universitas Mercubuana. Jurnal Ilmiah FIFO. Volume VIII Nomor 1.

[3] Lazuardi, Reza Fiqhi., Fitria, Lisye., Bakar, Abu., (2013). Artikel Jurnal Ilmiah Analisis Kelayakan Usaha Mobile Carwash di Kota Bandung. Jurnal Online Institute Teknologi Nasional. Volume 1 Nomor 3, 47-51.

[4] Ghajargar, Maliheh., Zanezini, Giovanni., Montanaro, Teodoro., (2016). Home delivery services: innovations and emerging needs. International Federation Automic Control. 1371-1376.

[5] Firdaus, Dailami. (2014). Perangkat Lunak Komputer. JurnalUniversitas Bhayangkara,

[6] Sahara, Riad., Lianawati. (2016). Rancang Bangun Sistem Informasi Akademik dan Penerimaan Siswa Baru: Studi Kasus pada SMK Jakarta 1. Jurnal Ilmiah Fasilkom. ISSN 1979-5254, Volume V Nomor 2, 117-124.

[7] Firdaus., Sovia, Rini., Gema, Rima Liana. (2016). Penerapan Queue Theory Sistem Antrian Cucian Mobil Carwash Autobridal 75 Padang Berbasis Web. ISSN 2356-0010, Volume 3 Number 2, 29-36.

[8] Faridha, Friska Umi., Wibowo, Sasono. (2016). Perancangan Sistem Informasi Pelayanan Pencucian Mobil pada Orange Carwash Semarang. Jurnal Universitas Dian Nuswantoro.

[9] Purnomo, Dwi. (2017). Model Prototyping pada Pengembangan Sistem Informasi. Jurnal Informatika Merdeka Pasuruan. ISSN 2503-1945, Volume 2 Number 2, 54-61.

[10] Utama, Yadi. (2011). Sistem Informasi Berbasis Web Jurusan Sistem Informasi Fakultas Ilmu Komputer Universitas Sriwijaya. Jurnal Sistem Informasi. ISSN 2355-4614, Volume 3 Number 2, 359-370.

[11] Aswin, Arief Rahmadian. (2016). Design Of Toyota Home Service Applications For Auto 2000. Resesarch of Science and Informatic. Volume II Number 1, 54-60.

[12] Zheng, Jianhu., Feng, Yunqing., Zhao, Yun. (2014). An Unified Modeling Language-Based Design and Application for a Library Management Information System. Bulgarian Academy of Sciences. Volume 14, 129-144.