



Car Rental Management System

(Project Proposal)

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1. INTRODUCTION

Car rental is an integral part of many people's travel plans and is used all around the world to travel from place to place. Whether travelling on business, journeying with the family or simply on holiday wanting to explore, car rental services are extremely helpful.

As well, computer has become a way of life, since everything is easy by being just a click away from the solution of problem. It only needs two characteristics to make it work, one who knows how to use it and one who understands. Though manual system is still using, computerized system is the simplest way and hassle free to work on especially in business transactions. In most rental, small-scale organizations like Prasanna car renting company, daily transactions are still done manually. And today car rental and order processing system has become a competitive necessity and profile to the company.

In the field of business, many established companies are using computerized system to process simple transaction up to the complex ones. The objective of this study is to propose a car rental management system in order to simplify the processes and procedures of the business.

2. LITERATURE SEARCH

Most of the small-scale car rental companies here in Sri Lanka are using manual systems for their transactions. It really helps them to grow their businesses. However, log books, written reports and Written Schedules are contributing to an increasing stack of paper works which makes the workplace and information storage messy. To address this problem the proponents would like to convert the manual system somehow into a computerized one.

Nowadays, computers are playing a major role in most of the industries and also in life styles of people. Its general purpose is to perform any local operations by carrying out finite sets of instructions. Computers are now a necessity and make lot of advantages for users. Having them in a workplace enables a business to perform their tasks and earn more income.

The computers by alone could perform numerous tasks. What will happen more, if systems or applications are added? It helps the users to, develop products, make decisions, and have fluid organization structures faster. By this proposed system, CRMS (Car Rental Management System), Prasanna Car Rental Company can offer the client an improvement in their quality of service and operational efficiency. Converting their manuals systems into computerized systems will allow them to focus more on the most important and vital things inside their business.

Therefore, with the Literature search, Studies and Systems, the proposed system called CRMS will give the business and the user a significantly big impact on their performance and efficiency in their industry. Unlike any other similar software, this Car Rental Management System provides specific program and functions specifically relevant to this organization. Focusing on the required target client, Prasanna Car Renting Company will allow the proponents to develop a compatible system for their orders and other records.

3. BACKGROUND AND MOTIVATION

Prasanna car renting company is a small but growing, national car rental company. The company was established in 2002 and it is located in Kelaniya. Major parties of this Prasanna car renting company are, the owner Mr. Prasanna (admin) and Miss. Thakshila (Sales officer) who is working in the office. The mission of the Company is to help people for fulfill and satisfy their rental and occasional needs. Prasanna car renting company envisions itself as a rental shop which cater people with affordable prices for the next 10 years. The company is looking forward to have a decent computerized system in their transactions and rental schedules. Regarding the staff's core values, the founder wants them to be, user friendly, accommodating, and hardworking.

Prasanna car renting company is one reliable option for those who needs a vehicle for a short period of time. They have around 25 cars to provide this service. According to Mr. Prasanna (owner), now it has been 8 successful years for their business but they still have some problems regarding their systems and transactions. They are currently using system such as log books, printed agreement form, white board for schedules, and CCTV. During the interview, the owner mentioned problems regarding the vehicle rental schedules, pick and return dates, damages, maintaining customer information, and vehicle information. He even mentioned some common violations of their customers such as overdue of return dates and the overlapping item rental schedules.

The proponent's perspective regarding the root of these issues is the Manual System they are using. CRMS could be the best system software that they are looking for. CRMS have the ability to monitor the pick and return schedules of each item they are offering. This system is also capable of storing the item's information to easily determine its characteristics and price. This also stores information regarding the customer for more security and assurance in their vehicle's retrieval. However, this System does not have the capacity to detect damages and real-time monitoring.

Overall, the motivation for designing this application because CRMS is good when it comes to decreasing paper works and eliminating double booking incidents. It can easily check the overdues, returned, and unreturned vehicles.

4. PROBLEM STATEMENT

The existence system has number of problems in the working procedure for the organization and customers. Those problems are,

1. Customer invoices are issued manually (Hand Written) and calculations are also done manually.
 - There is a probability of getting calculation errors when doing calculations in the invoice.
 - There are some problems in maintaining copies of issued invoices.
2. During renting a vehicle, the customer information and contract made between them are filled in a form.
 - It is not easy to keep printed paper records of large number of customers because it needs lot of space to keep these documents & they get damaged with the time due to insects.
 - The customer records may be difficult to find in case of misplacing or disappearing due to massive collection of data.
3. During generating monthly report.
 - When generating report, it takes time and it may not be easy to manage and analysis the monthly work due to massive collection of data and the generated report may not be accurate.

5. PROJECT OBJECTIVE

5.1 General Objective

The general objective of this project is to develop interactive system for the Prasanna car renting company.

5.2 Specific Objective

Here are some specific objectives that would together help to achieve the overall objective of the project.

- Study the existing system and find out the problem.
- Find the solution for the problem found in existing system.
- Design and build a particular model of this proposed system.
- Deploy the system and maintain it till it fits to the needs of the organization.

6. PROPOSED SOLUTION/METHODOLOGY

To achieve the objectives of this project, we are proposing a computer-based car rental management system to Prasanna Car Renting Company. This proposed system will be developed and deployed on following the waterfall methodology (main methodology). Means the new development stages are supposed to get started only after the completion of the previous stage. All the methodologies used in stage wise have been clearly mentioned under this chapter.

6.1 Nature of the Solution

In this proposed system, there are two types of users; they are administrator and Staff. All the users should be able to login to the system with separate logins. New users can be registered only under administrative concern. A table is there in the database to store the user details and their login credentials. Any user can change their own password.

As same as the user details there are 3 separate tables in the database to store customer data, vehicle data and order data. This information can be retrieved by the users as per their privilege. Anyone can search the system using given specifications & the availability of the vehicles. We have listed below the facilities that the system will provide to its different types of users.

Facilities for the administrator,

- Add data of a new vehicle
- Edit data of existing vehicle
- Remove an existing vehicle from the database.
- Create a new user
- Change admin password
- Access reports
- Delete Order
- Delete customer
- Search and edit existing order details
- Search and edit existing customer details

Facilities for the sales officer

- Change its own password

- Create a new order
- Search and edit existing order details
- Create a new customer
- Search and edit existing customer details
- Search vehicles (cannot be edited)

6.2 Feasibility Study

We have done a complete feasibility study on this project, and it will be very useful for both client and proponents to know what are the possibilities, opportunities, and advantages of having this proposed system in the company. By referring this segment, you can assess whether the proposed system is technically, operationally and financially feasible for the company or not.

6.2.1 Technical feasibility

The proposed system uses a computer unit and a printer. Therefore, the same single computer will be used by both admin and the sales officer. The printer is mainly used for printing customer invoices. Using above mentioned technical equipment, it's feasible to implement this proposed system inside Prasanna car renting company.

6.2.2 Operational feasibility

The proposed system is a fully computerized system which stores its data in a MySQL database. Therefore, the proposed system will be a good solution to the drawbacks of the existing system that have been mentioned under problem statement above. So, we can mention the strengths of the proposed system as below,

- All the calculations will be done automatically by the system so there will be no calculation errors in future.
- No need to maintain huge amount of paper documents, all the data will be available in the database. (If you need them at any time you can get a printout of those).
- The proposed new system will generate the reports with 100% accuracy and

the confidentiality of that reports will be certified by the system.

By considering the above-mentioned facts we can conclude that the proposed system is operationally feasible for the Prasanna car renting company.

6.2.3 Economic feasibility

Cost benefit analysis is the best way to present economic feasibility of this proposed project. We have created this analysis chart based on the forecasted data of this year and upcoming two years. Refer the analysis data below to get a clear understanding,

Cost Benefit Analysis				
	Year			
	2021	2022	2023	Total
Benefits				
1. Increase of sales	LKR 100,000.00	LKR 120,000.00	LKR 130,000.00	LKR 350,000.00
2. Reduction of stationary cost	LKR 25,000.00	LKR 25,000.00	LKR 25,000.00	LKR 75,000.00
3. Reduction Of old Record Maintainance Cost	LKR 10,000.00	LKR 10,000.00	LKR 10,000.00	LKR 30,000.00
Total Benefits	LKR 135,000.00	<u>LKR 155,000.00</u>	<u>LKR 165,000.00</u>	<u>LKR 455,000.00</u>
Development & Implementation Cost				
1. Cost of purchasing a computer	LKR 20,000.00	LKR 0.00	LKR 0.00	<u>LKR 20,000.00</u>
2. Cost of urchasing a printer	LKR 15,000.00	LKR 0.00	LKR 0.00	<u>LKR 15,000.00</u>
3. System development labor cost	LKR 120,000.00	LKR 0.00	LKR 0.00	<u>LKR 120,000.00</u>
4. Stationary for printing invoices	LKR 5,000.00	LKR 5,000.00	LKR 5,000.00	LKR 15,000.00
Total Cost	<u>LKR 160,000.00</u>	<u>LKR 5,000.00</u>	<u>LKR 5,000.00</u>	<u>LKR 170,000.00</u>
Cumilative Net Cashflow	-LKR 25,000.00	LKR 150,000.00	LKR 160,000.00	LKR 285,000.00
Return On Investment				167.00%

Based on the above cost benefit analysis we can clearly see that return on investment (ROI) is 167% from the total cost. That means this system will generate 167% profit compared to the cost incurred for implementing and maintaining the system. So, we can conclude that this proposed system will be economically feasible for Prasanna car renting company.

6.3 Technology Adapted in System Designing

The proposed system uses java language to create this system based on Eclipse IDE. To store the data generated by the system a MySQL database will be used through WAMPP server. In order to connect this java-based system to the MySQL database the java connector for MySQL is used.

6.4 System Testing

The above designed and implemented software system is proposed to be tested again according the unit testing methodology. All the bugs and unhandled exceptions that will arise in this process will be repaired immediately.

6.5 System Deployment and Maintenance

So, the above re-tested car rental management system is proposed to be deployed under parallel installation methodology. This methodology is selected, by assessing the importance of the data to the company. This means, the data generated through the sales and other processes in this company have a huge value. If something happens to this data due to some problem in the new system it will be a huge problem. Therefore, by following the parallel installation methodology company can keep the both systems for a period of 2 months after the deployment of the new system. Then if some problem occurs in the new system, it will not affect much because, the existing system is also functioning until we recover and repair the bugs in the proposed new system.

7. RESOURCE REQUIREMENTS

7.1 Hardware Requirements

- Desktop computer
- Keyboard & Mouse
- UPS Unit (For power failures)
- Inject /Laser Printer

7.2 Software Requirements

- WAMPP Server
- MySQL Database
- Eclipse IDE 2020-3 or Above
- Java connector for MySQL

8. PROJECT TIMEFRAME

1	TASK	DURATION	START DATE	END DATE
2	Planning the project	15	2021.05.01	2021.05.15
3	Gather information	5	2021.05.16	2021.05.20
4	Build a blueprint	6	2021.05.21	2021.05.26
5	Build a database	4	2021.05.27	2021.05.31
6	Build the system	50	2021.06.01	2021.07.20
7	Test the system	7	2021.07.21	2021.07.27
8	Implement the system	3	2021.07.28	2021.07.30
9	User Training	2	2021.08.01	2021.08.02

Figure 1: Project Time Frame

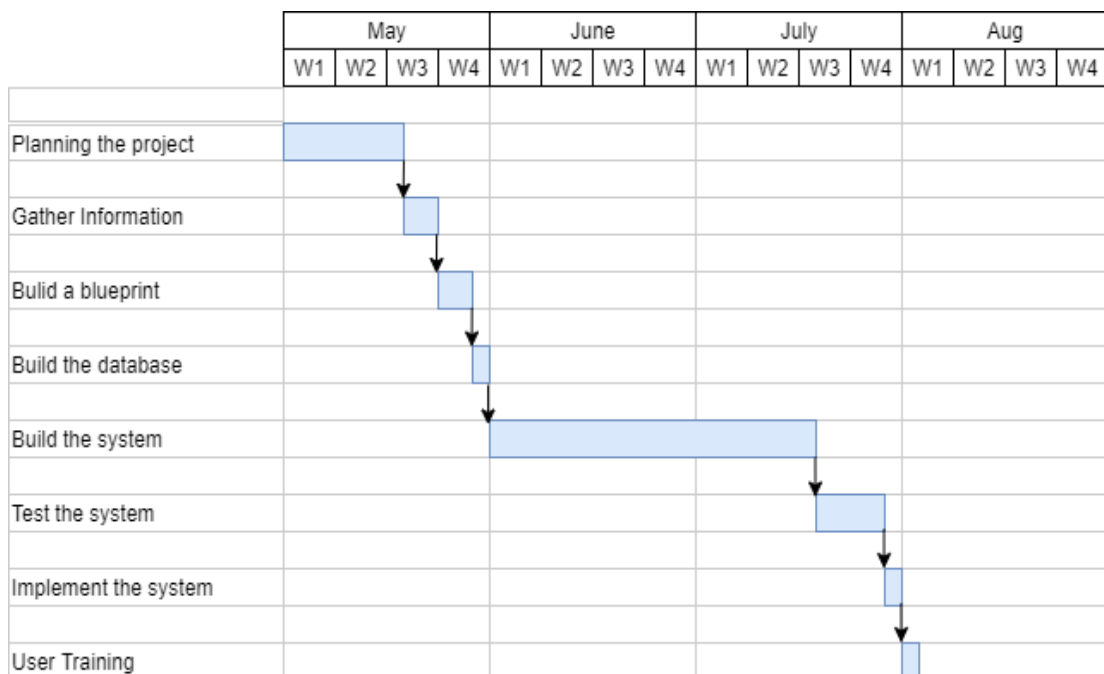


Figure 2: Project Time Frame 1

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