# CAR RENTAL WEBSITE SYSTEM

**Full Names**

A project proposal submitted in partial fulfillment of the requirements for the award of Bachelor of Business Information Technology at the School of Computing and information Technology, Murang'a University of Technology

**year**

## DECLARATION

This proposal is my own original work and has never been submitted to any other in lstitution of higher learning

Signature _____ _____

Name …….  DATE ……

REG NO.

**SUPERVISOR**

_____ _____

Dr. GeoffreyMariga, Ph.D.  DATE

Department of Information Technology

School of Computing and Information Technology

Murang'a University of Technology

## DEDICATION

I dedicate this project proposal to Yahweh; he has provided all that I need for this project proposal. I also dedicate this work to my family and friends. Special gratitude goes to my loving parents.

## ACKNOWLEDGMENTS

I thank the almighty god for his protection and guidance all through the writing of this proposal. I appreciate my lecturers for been supportive and guiding us all through the writing proposal process.

Special thanks go to Dr. Mariga the head of IT department in Murang'a University for guiding us all through the semester. I also thank my friend for encouraging me up until the completion of this proposal.

## ABSTRACT

**<<text should be in single spacing>>**

## TABLE OF CONTENTS

## LIST OF FIGURES

## LIST OF TABLES

## ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| **CRS** | Car Rental System |
| **IT** | Information Technology |
| **OOP** | Object Oriented Programming |

# CHAPTER ONE

# INTRODUCTION

## 1.1 Overview

Project is about creating a Car Renting Management System for a car renting business. This system will be a web based application and consist of two part. The first part of the system will provide with a portal where customers can log in to the system and search for desired vehicle and reserve them for renting. The second part of the system will allow the business to update details about new vehicles, payment details and other details easily. The system will collect renting details from the customer and provide them the basic cost of the transaction and confirmation of the request. Business side users can update end renew details about vehicles and payments etc. The system will provide an updated view. The system will create reports of total reservation in a time period, Number of times a vehicle reserved and details about reservation of each vehicle

## 1.2 Background to the Study

Transport is becoming a matter of headache for people who do not have any personal means of transport in Kenya. On occasions like wedding, vacation, house shifting, and tour outside. They feel the need to have a personal vehicle especially with the covid-19 guidelines.

CRS is a web-based system for company that rents out car to the public. The system enables the company to make their services online and also keep record about their services. In the modern world, the use of technology has made a great impact in our lives. The rapid growth of computers has influenced so much that some people say it is a witch in form of a machine. Car renting is essential to many peoples' plan to travel or move from one place to another for travels, vacations, business tours for these reasons renting a car might be very helpful.

The car rental system is an online facility to a car via the internet with only a few clicks. The modern world is busy and people prefer things that are quick and easy. The car rental system will simplify the entire process of booking a car.

### 1.3 Statement of the Problem

In our country Kenya most of the population belongs to the middle-class families thus most of them can't afford car. In this period of the covid-19 pandemic, the public vehicle is not the best option. Public vehicles are crowded, generally they do not run on time e.g. like the buses. Our main problem is that one should reach their destination on time with comfort.

Based on observations, some companies in Kenya have car rental systems which are not web-based applications. This creates a limit to some services that they can offer to the public e.g. they are limited to advertising their services to the public. They have to use posters in order to advertise their products and service to the public. These type of companies can able to tackle this problem by switching up to a web base application.

Some companies also made use of phone calls to make reservations. Phone call reservations are limited since the customer will not be able to identify the type of car and model to hire. For example a customer may make a phone call reservation for a particular car, but when he/she arrives in the office for pick up, he/she might not like the car, this could be because the customer was not able to maybe get a sample picture of the vehicle to rent.

This web-base application will be a comfortable option for those who:

- Need a higher level of mobility and comfort while travelling
- Those who would wish to try a particular car model before purchasing or renting
- Are in need of a car for a particular period, but does not have the desire or opportunity to buy it

Also working with people can be a tedious process since they tend to change their plans just as fast as the wind moves. So in order to manage all the reservations, be able to deal with booking alterations, cancellations by customer especially if they are done on last minute, possible shaft shuffling and car availability we need a web application system that can handle all these activities.

### 1.4 Objectives

### 1.4.1 General Objective

The main objective of this study is to develop a website system that will be used in the process of renting cars by consumer.

### 1.4.2 Specific Objectives

The specific objectives of this study are:

i. To analyze the existing car rental system
ii. To design a car rental website system
**iii.** To develop a system that can acquire and analyze full details of the car and updating to the system

iv.
v. **To test/validate**……...

## 1.5 Significance of the Study/Justification

The web-application in construction will be unique in that it will be able to take up our inputs and using our inputs it will be able to suggest a suitable car for you

Electronic Identity Verification – this is to ensure that the documents that will be provided by the customer are true and verified to reduce the levels of fraud and usage of counterfeit documents.

The systems wants to add some services in order to make the web-base application unique from the other existing system. These services are to ensure that they boost the business process and ensure customer satisfaction. Some of the services include;

GPS tracking – to be aware of each car location up to the moment. This will help ensure recovery of vehicles. By using the GPS the system will be able to determine the customer's location and will deliver the rented vehicle to him/her.

## 1.6 Scope of the Study

The scope of the car rental system is as follows

· The car rental system to keep detail records of both the cars and the customers

The duration they rent car as well as the type of car they rent.

· The system will be mainly design for a starting company that renders it car rental services to customers.

· The system will have the ability to generate and print invoice for each successful transaction.

# CHAPTER TWO

# LITERATURE REVIEW

## 2.1 Introduction

Joe Saunders was the first person to start a  car renting company. In his company, charges were calculated with the help of a mileage tracking device. After that many people were interested and hence got involved. As years passed by, car renting companies became more popular and now they can be found all over the world.

## 2.2 Details of other existing system

Most of the car rental companies make profit based on the type of cars that they rent. Rental cars are usually categorized as: mini, Economy, compact, intermediate, standard fullsize, Estate, minivans. Customers have a self-service platform to choose the type of car they want according to their financial capabilities or the kind of event they are having.

There has been companies that have been in the global business for quite a long time. I will give three examples of car renting system which were on top by the year 2020:

2.2.1 **Momondo**

The company  is located in Nairobi. This company managed to build an online car rental reservation system. The system combined a a state of art cloud CRM, an online tracking system for vehicles, and built-in task manager. The system is easy to use, configure and integrate with multiple third-party services, financial, use of emails, and accounting. The system also allows for fleet management and timely management of the car rental business. The system makes different automations efficient and easy to use.

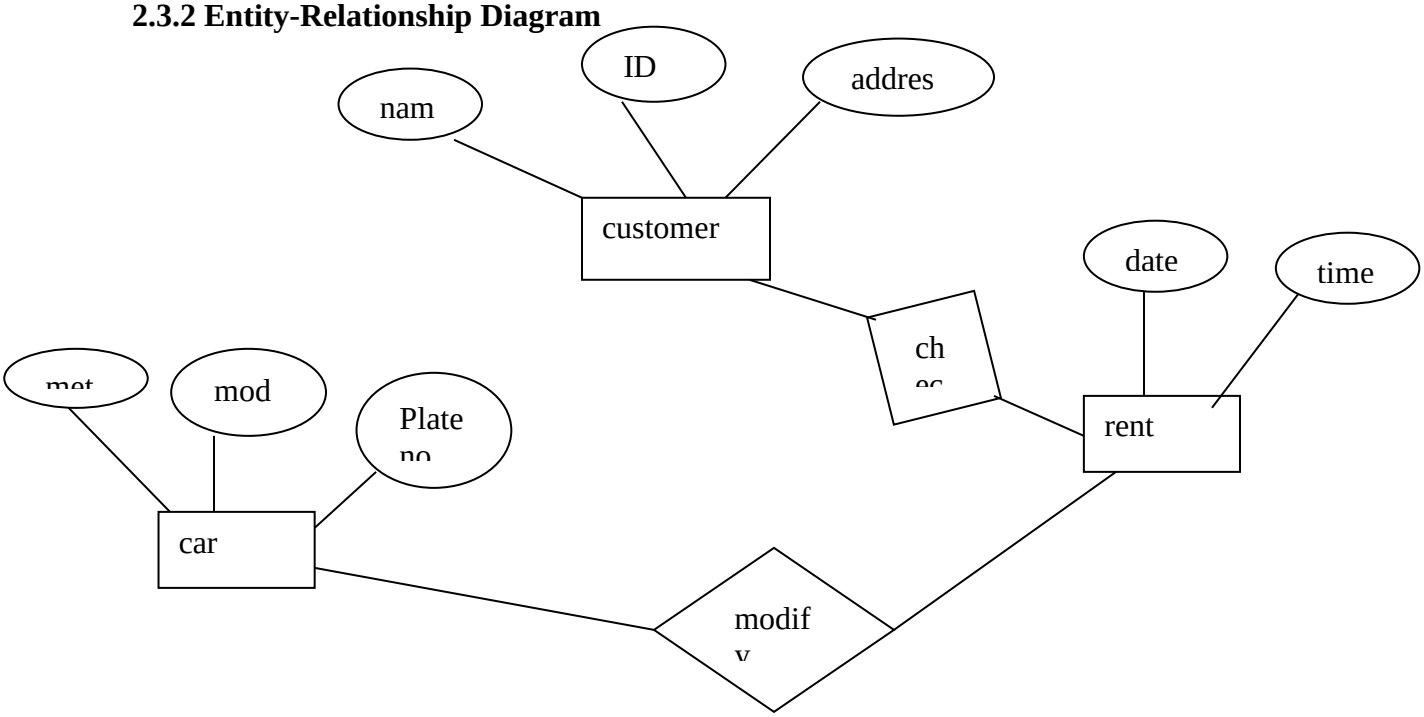
2.2.2

**Stunner group**

The company is located in Nairobi, Kilimani. The system was developed with advanced features and was created for a small car rental company. It was initially created to simplify the process of booking and fleet management. to the modern date it has been developed to support unlimited number of vehicles. The unique feature about this system is that it is able to allow smooth rate and fine incase of any inconvenience on the customer side e.g. when a customer doe not return the vehicle on the specified date and time

## 2.3 System Design Techniques

### 2.3.2 Entity-Relationship Diagram

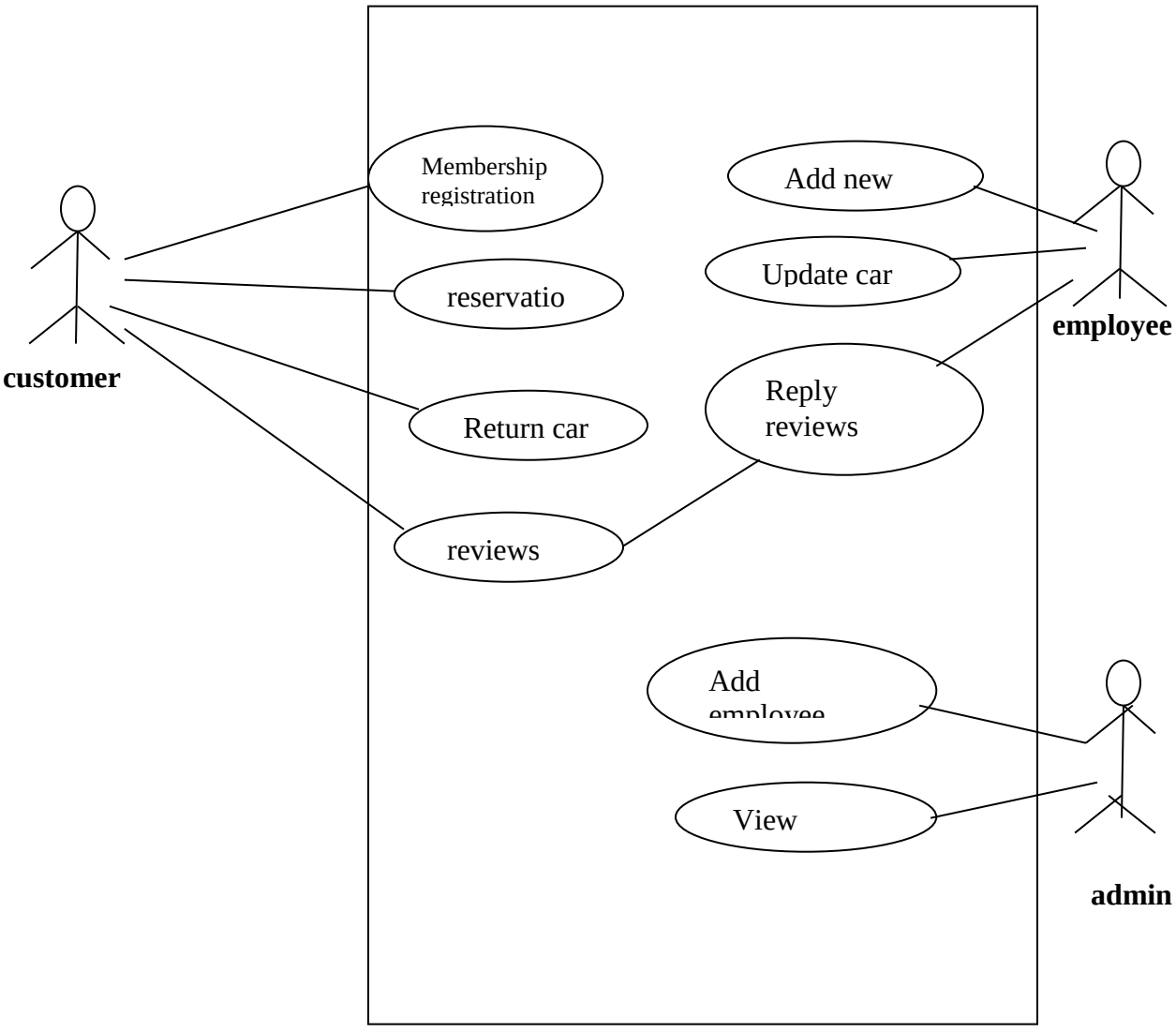



**Use case diagram**

Actor and use case description shows the detail description of interaction between the actors and their use cases. The description enables to have a proper understanding of how actor interacts with the system through their use cases.

| | | |
|---|---|---|
| Customer | Membership registration | This use case describes the activities of the customer to register online and become a member. Customer's details are required as part of the registration. Login detail is automatically sent to the customer after successful registration |
| | Make reservation of vehicle | This use case enable customer to search and make reservation. Non-register customer will be directed to register before their reservation can be confirmed. Notification is automatically send to the customer after the task is completed. |
| | Returning the car | describes the event of customer returning the car borrowed |
| Employee | Update car details | This use case is used by the employees to edit and modify car details whenever there is new renewal (insurance, road tax). It allows the company to keep up-to-date record of their fleet. |
| | customer’s feedback | This use case describes the event by which staff sends reply to customer's earlier feedback. It depends on `give feedback' use case from the 8 customer. |
| | Adding rental details | This use case described the event by which staff updates the system when customer pick up or when returning car. |
| Admin | Add employee details into the system | Admin add new staff detail to the company's staff database. It is invoke whenever a new staff join the company |

Fig use case description details


Membership registration
reservatio
Return car
reviews
Add new
Update car
Reply reviews
Add
View
customer
employee
admin

**2.4 System Development Techniques/Technologies**

Iterative Waterfall Model is the extension of the Waterfall model. This model is almost same as the waterfall model except some modifications are made to improve the performance of the software development. The iterative waterfall model provides customer's feedback paths from each phase to its previous phases

1 . **Requirement gathering & analysis**

In this phase, requirements are gathered from customers and check by an analyst whether requirements will fulfil or not. Analyst checks that need will achieve within budget or not. After all of this, the software team skips to the next phase.

2**. Design**

In the design phase, team design the software by the different diagrams like Data Flow diagram, activity diagram, class diagram, state transition diagram, etc.

3. **Implementation**

In the implementation, requirements are written in the coding language and transformed into computer programmes which are called Software.

4. **Testing**:

After completing the coding phase, software testing starts using different test methods. There are many test methods, but the most common are white box, black box, and grey box test methods.

5. **Deployment**:

After completing all the phases, software is deployed to its work environment.

**6. Review**:

In this phase, after the product deployment, review phase is performed to check the behaviour and validity of the developed product. And if there are any error found then the process starts again from the requirement gathering.

7. **Maintenance:**

In the maintenance phase, after deployment of the software in the working environment there may be some bugs, some errors or new updates are required. Maintenance involves debugging and new addition options.

### 2.5 System Testing Techniques

Software development is complex process and errors tend to occur at each stage. In our software development we will implement the use of iterative waterfall method hence at each stage there will be a unit testing occurring. Unit testing will help eliminate errors at each stage.

### 2.7 Conclusion

The methods used to collect data helped us to establish a basic understanding about our website. They also helped us identify all the people that will benefit from the system for it to become a success.

## CHAPTER THREE

## METHODOLOGY

### 3.1 Introduction

This chapter discusses the System development methodology for the proposed system

### 3.2 System Development Methodology

In the car rental system development I will use the Iterative Waterfall Method to develop the system to full functionality. The model consists of five stages: requirements and definition, system and software design, implementation, system testing, and maintenance.

In a practical software development project, the classical waterfall model is hard to use. So, Iterative waterfall model can be thought of as incorporating the necessary changes to the classical waterfall model to make it usable in practical software development projects. It is almost same as the classical waterfall model except some changes are made to increase the efficiency of the software development.

The iterative waterfall model provides feedback paths from every phase to its preceding phases, which is the main difference from the classical waterfall model.

Feedback paths introduced by the iterative waterfall model are shown in the figure below.

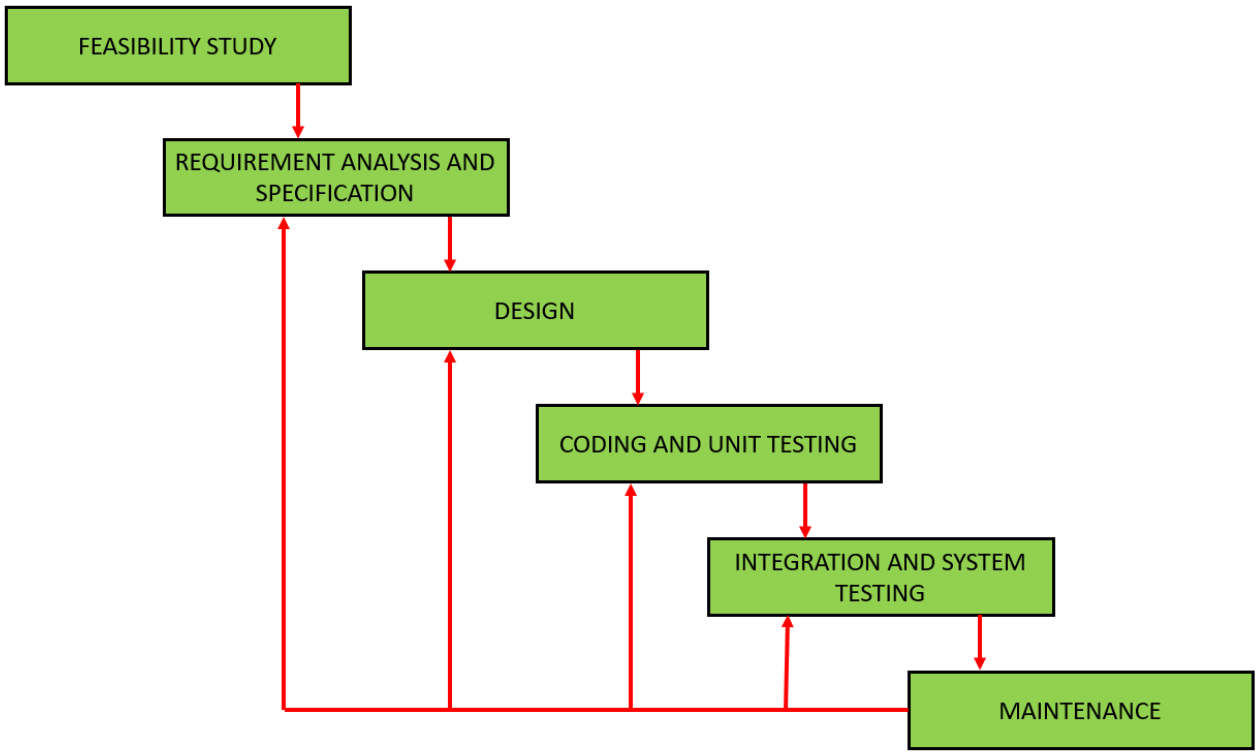



Fig 1.0

### 3.3 Data Collection Methods

In this stage we identify the problem and develop all possible solutions in tackling the situation at hand. Then from the developed solutions will choose the best solutions that can satisfy all the stakeholders' requirements.

To get the requirements needed from every stakeholder I was able to generate some questions that would be used in the questionnaires and interview that would be conducted. Our stakeholders are ; customer, employee, and admin

Due to the time limit, customers were given questionnaire to answer on their free time and then they would hand in the result. A total of 100 questionnaires were handed out to customers, the questionnaire that we were able to get back were 69.

To the employees, interviews were conducted at random to any employee. A total of 11 interviews were done and the results were recorded using an audio recorder for future reference.

An interview was conducted to the company CEO and he was able to state some of his requirements from the system.

**Some of the Question Asked**

- What functions are you expecting from the system?
- What problems are you facing in the current system that you would want to automate them?
- Customer: what kind of your information would you like staying in the public?
- What kind or level of security would you want in the system?

### 3.4 System Requirements

**Inputs/Outputs**

The inputs/outputs are different depending on the different stakeholders of the system

**Stakeholders**

Customer

Admin

Employee

**Customer inputs**

Name

Customer id

Customer DOB

Address

Date they want to rent the car

Date of return

How many cars they want

Event to attend (optional)

Gender

Occupation

Model of car they want

**Admin inputs**

Username and password (login)

**Employee inputs**

Username and password (login)

Enter details of car (updates)

**Vehicle**

Vehicle id

Vehicle-status

Vehicle-reg no

Meter reading

**Outputs**

**Billing**

Amount Advance

Discount amount

Tax amount

Bill status

Bill date

**Report**

Report if needed by the customer or the admin

**Vehicle**

Car approval verification when the customer is renting

### 3.4.1 Hardware Requirements

Computer device

Smart phone for internet

Printer to print document

8 gb flash disk or backup and storage

### 3.4.2 Software Requirements

SQL and wamp will be used for database

PHP programming language will be used

MS Office Word

## REFERENCES

AHMAD, RAHIMAH BINTI ZAMIR. "CAR RENTAL ONLINE BOOKING SYSTEM."

Cáceres Passano, August o Humberto, et al. "EASYRENT cars."

Osman, Mohd Nizam, et al. "Online Car Rental System Using Web-Based and SMS Technology." *Computing Research & Innovation (CRINN)* 2 (2017): 277.

Marhayanie, M. Ismail, and Iskandar Muda. "Impact of the online car rental service order system on sales turnover with financial literacy customer as intervening variables." *International Journal of Economic Perspectives* 14.16 (2017): 317-332.

HASSAN, YASIR ADO. "CAR RENTAL SYSTEM." (2020).

## APPENDICES

**Appendix 1: Budget**

| item | Description of item | quantity | cost |
|---|---|---|---|

| | | | |
|---|---|---|---|
| **laptop** | Intel icore 5, 4th gen, min 500gb hard disk | 2 | 75,000 |
| **desktops** | Hp | 5 | 136000 |
| **P,** | | | |

**Appendix 2: Project Schedule**

I will use a gantt chart to plan all the activities that are to be followed during the development Of the project. The activities include :

- A – Gathering requirements and definitions from stakeholders
- B - System analysis and design
- C – implementation and Testing

- D – unit testing by outsiders
- E - system testing
- F- Maintenance and records