

Design of Car Rental Management System for Organization, Customers and Car Owners

T. Prince¹, M. Jenifer², Axumawit H³, Betelhem H⁴, Firkremariam G⁵, Hana S⁶, Saba W⁷
Computer Science & IT, Arba Minch Institute of Technology, Arba Minch University, Ethiopia

Abstract

We propose a new design for car rental management system. This system will provide the benefit for the customers, car owners and Car Rental Organization (CRO). Currently available system is providing the rental process between the customers and Car Rental Organization. In the current system, customer can choose and book the rental car by online. This is one way business for the Car Rental Organization. Our proposed system will provide the two way business for Car Rental Organization. Interested car owners can make the agreement between the car rental organizations to give their car for daily, weekly, monthly rental basis or kilometer basis. Here the organization is not needed their own cars for rental business. By this approach car rental organizations can increase their business and satisfying the customer by the requested models. This design will help to the normal people to start their own car rental organization without investing more initial investments. Also this system provides good profits for the car owners and it creating second income for the car owners without working. This system provides the rental information for the car owners by daily weekly and monthly basis. Also car owners can check the car location travel details in car rental organization website by using the GPS tracking details.

Keywords –car rental management system, class diagram, GPStracking, online car rental, usecase diagram

I. INTRODUCTION

Transportation is necessary thing in our life. Everyone is not in the position to use the own car. Even though the person having own car, they are using rental car for long drive so that the rental car system is unavoidable. Some kind of people not interested to maintain the own car because of maintenance problem, road tax, vehicle insurance etc. for this type people also preferring rentalcar. So in the human life rental car service is unavoidable.

II. RELATED WORKS

Car rental organization is getting the cars from the owners so they give the surety and security to the car. For the safety & security, anti-theft and current status of car [6]-[10], we are using the several techniques because CRO getting the cars from owners and providing the services to the customers. So that the CRO in the position to return the cars in the good condition to the owner.

In [8], in the car vehicle tracking device installed. It will find location of the car and track the vehicle by the help of Global Positioning System (GPS) and Global System for Mobile communication (GSM).

To improve the safety, security and anti-theft, in [9], camera attached hidden in front of the driver. It will capture the picture after started the vehicle, and compared with the customer picture. If the system is found that the images are not same by the face detection technique then it will send picture to the owner by MMS and it will stop the engine.

In [1]-[4], UML is a general-purpose, developmental, modeling language in the field of software engineering; It provides a standard way to visualize the system design.

III. LIMITATIONS OF CURRENT SYSTEM

In the current system, in the CRO point of view, it is a one way business and CRO has to invest huge amount to buy the cars. Because of a huge investment, CRO hasn't to provide the various model and high end cars. This problem can be solved by the proposed system.

User point of view, in the current system, rent service provided with the driver. So the customer has to pay the driver salary additionally with the rent money. But the proposed system is supporting thee customer can take the car without driver. Also it provides the online payment with daily, weekly and monthly.

IV. PROPOSED SYSTEM

Actually in the current system, it has only two actors one is manager and another one is customer. But in the proposed system, it has three important actors are; administrator, customers and car

owners. Here discussing that three actor's benefits and work flow

A. Customer

In this system, who is renting the car from the car rental organization is consider as the customer. This system providing two types of rental process is with driver and without driver. If the customer interested to derive then in the agreement customer has to choose non-driver option, in this driver will come and handover the car to the customer place. To start the renting process in car rental organization, customer has to create account by providing personal information, user name and password. To access this system user name and password is must, because customer has to make the payment process by online only.

To take rental car from the organization, customer has to fill the form; it needed the travel information like how may days needed car, date of travel, car model and return date. While selecting car; customer can view the car information like car manufacturer name, model, year, insurance and finally it needed the customer picture for the anti-theft tracking.

At the Customer can pay the car rent by online. It's supporting pre-payment only. The rent of the car is calculated by kilometer basis or daily, weekly and monthly rent basis. Customer has to pay the full amount before taking the car from organization. After return the car again system will check the amount. If the customer has to pay additional amount then the system will take money from the customer account by GIRO (General Interbank Recurring Order) [3] or customer has to pay by online. If the organization has to repay the excess amount to customer then the system will transfer the money from organization account to customer.

B. Car Owner

This system is providing good business for the car owners. All people are not having the business interest and techniques to involve in the business. They are interested to act as the sleeping partners because they are not ready to take the risk. Interested car owners have to make agreement with car rental organization. Agreement is considered; vehicle information (make, model, vehicle Identification Number, color, year, mileage), agreement period (monthly, yearly), insurance, condition of car, maintenance and repair (routine maintenance, breakdowns & repair, accidents & repair), and permit.

Also car owner has to select the payment term (weekly or monthly). Based on the selected payment term and mode, money will transfer from the car rental organization account to car owner account. Online mode are automated electronic payment possible (GIRO) by the agreed payment date and amount [5].

System provides the Safety & Security, anti-theft and current status of car (current location and traveled distance) to car owner. To see this information car owner has to login and select the car if he provided more than one car to the organization in car rental organization website by using the GPS technique and GSM modem.

C. Car Rental Organization

In this proposed system, CRO getting the two way business. First one is; renting the car to the customer, from that renting process CRO getting profit. Second is; getting the car from the car owners. Here the CRO sharing the profit and resources with the car owners, by this way CRO can increase the number of cars as well as can get the different models to satisfy the customers.

CRO is making the agreement with customer, car owners and bank. As per the agreed amount and date, amount will transfer to the car owner account from CRO account. So that CRO has to keep the enough money in his account. In the same way; as per the agreed amount and date, amount will transfer to the CRO account from customer account. So that customer has to keep the enough money in his account.

CRO providing the driver services based on the customer request. Also it's providing the pre-payment service to the customer. Driver has two activities only delivery the car to customer and pick up the car from the customer place. Driver will take the customer address from his page.

V. DESIGN

In fig 1: we have given the use case diagram for the proposed system. In this proposed system only five actors are; customer, car owner, employee, manager and driver. Each actoris having their own activities. Customer has different activities in the proposed system are: register, login, search car, select car, booking with agreement, payment and return. Car owner has the activities register, login, agreement, tracking, check payment. Employee can register, login, manage the maintain car information, view report (daily, weekly, monthly), generate bill, and tracking. Manager can do view report. Finally the driver delivery the car and pick up the car from the customer

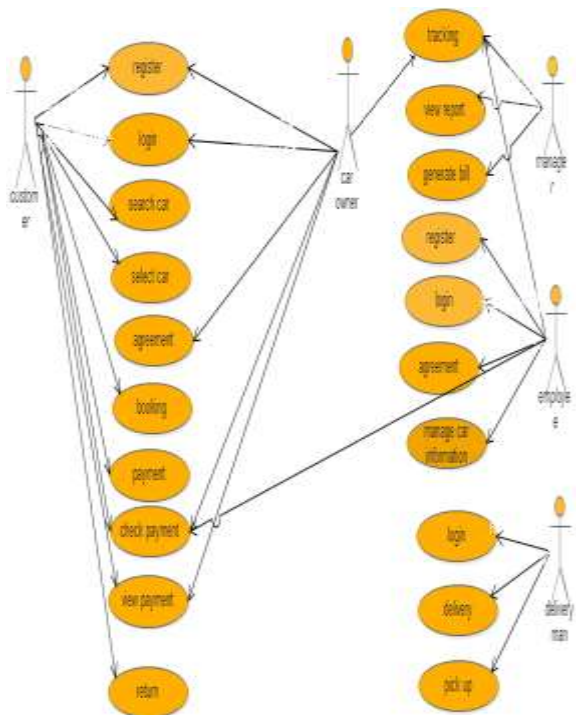


Fig. 1. Usecase Diagram

VI. CONCLUSION

This proposed system is more convenient for three aspects of people as referred in abstract. In the point of view customer, he can use the vehicle as his own with agreement and scheduled payment also the customer no need to worry about the payment because it will be detected from the account by GIRO with bank agreement. In the car owner point of view, resource is using effectively and getting benefit for it and based on the payment, money will transfer to the customer account by weekly or monthly basis. In the organization point of view demand of resources will be satisfied so they can increase the business and satisfy the customer needs. Finally this system is providing good business for organization and car owners and for customers it will be good service.

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