

## IOT Based Quick Car Rental Service

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**Abstract**— The Quick Rental service vehicles web system is a web- based that creates by Java and IOT. Our software application aims to be a complete solution for a web-based car rental broker companies with the support of call centre functionality in India’s metro cities and automatic car rental services. It can be easy for tourist, travel agency, and Private visitor to online make research, comparison vehicles prices and make reservation, online payment when they travel.

IOT based Car rental management system is a car booking software that provides a complete solution to all your day-to-day car booking office running needs. This system helps you to keep the information of Customer online. You can check your customer information any time by using this system. IOT based Car rental service system is a unique and innovative product. Using this this you can also keep the information of number of bookings in current month or in last 6 month or in last year. This helps you to track your business and you earning in particular month or in any year. Based on this information you can take decision regarding your business development.

**Keywords**— IOT based Car rental Companies, Economy Car rental Car Companies Best IOT based Car rental Company Best IOT based Car rental Services.

### I. INTRODUCTION

This project is designed to be used by IOT based Car rental Company specializing in renting cars to customers. It is an online system through which customers can view available cars, register, view profile and book car[1].

It is often organized with different local offices which allow users to return the is hired vehicle to different offices located at different destinations in city. These offices are primarily located near railway stations, airports or busy city areas[2]. These IOT based Car rental agencies mainly serves people who require temporary vehicle for commutation in the city or to different cities[3,4].

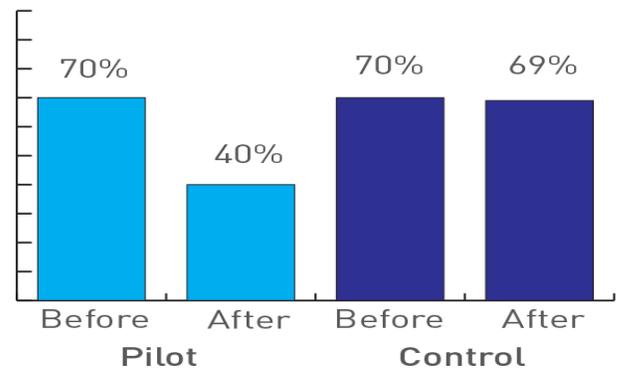
Many revolutionaries have changed from manual to the online system, especially in the workflow and type of resources that are stored in the rental services. The web portal and android applications for the customers can also use the system to rent a car & the pickup-drop managers will use the app for entering all the pickup-drop details required [5].

Then he/she will have to complete the registration process including validation from company only then can make a reservation for a car [6].

### II. LITERATURE

The research on Analysis of Self-Drive Rental Cars in India and other topics in the Indian context are limited as the online food ordering services has entered into Indian market only a few years back[7,8]. The literature reviewed relates to the studies conducted outside India where online food ordering is a big hit.

**Proportion of Reviews that are Negative**



**Fig. 1: Proportion review**

This chapter were providing the literature review which is related to the project development and make reference to existence of other systems. The sources are refer from the book, articles, journals and also sources from internet[9].

- *IOT based Car rental System*

Web-based system understands as server components of distributed applications which use the HTTP protocol to exchange data between servers and clients(browser). By this definition, the principal problem of Web-based system development becomes apparent from business perspectives[10,11].



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*A. Online IOT based Car rental System using Web-Based and SMS Technology*

The Study Found that the Integration of web-based technology in the car rental agencies and depicted that it is the best way to take the advantages of today technology, in order to enhance the productivity and efficiency of organization.

*B. Self-Drive – IOT based Car rental System, A System for online car rents*

In this study it described that how the system overcomes all the flaws of the existing system and brings an era of revolutionary system which is speedy, efficient and very much adaptable[12]. Which would make the self drive rental car industry much more safer for its users.

*C. A framework for increasing understanding of self-drive tourism markets*

In this study their aim is to identify a framework for analysis of case study research into self-drive tourism and its associated markets[13,14]. The history and significance of drive tourism markets across the globe are briefly identified, and statistics are provided to support increased attention being paid to. these. Market.

### III. OBJECTIVE OF THE STUDY

The Objective of the study is given below

- To analyze the current scenario of Self-Drive car rental Industry in India.
- To understand the working of the industry.
- To know the consumer preference about which company do they prefer.

### IV. RESEARCH METHODOLOGY

This chapter we are provides the method and approach which have used to development on this System. We will discuss different type of model objects in this system project and a detailed explanation of each phase in developing on this project.

A methodology is part of important technique use to managing and controlling for research in project to achieve the specified objectives within a given time. In order to complete this research, there are five major phases involved.

Each phase involved in this project have significance in achieving the objectives of the project. This project begins with knowledge acquisition phase and finished with the documentation of result. As mentioned in the objective of this project, data matching technique is applied to provide car rental service to the users.

The data on the working of the industry was collected by analyzing the working of various companies, by understanding their policies, working and all the other process. The last part was of conducting a survey to know the consumers preference, on which company do they prefer and the services while considering the self-drive IOT based Car rental industry.

- *Project Methodology*

On this project we need found the best methodology which to easy improve, high market value in future develops on this project model. Finally, were choosing Waterfall model to become planed and develop idea for this system project.

- *Methodology Justifications*

Now in this project we will discuss how can we justification idea of waterfall model, why we choose waterfall model to be software development idea, and what advantages in waterfall model.

### V. RESULT AND DISCUSSION

*A. To analyze the Current Scenario of Self Drive IOT based Car rental Industry in India*

Renting a car and driving it yourself is still a rudimentary concept and there are people who want to learn to car and some deny the need to buy a car. most cities in India face issues of traffic congestions and limited parking spaces. There should be at least one car in house which you also wish to keep in your house.

A large part of this population is working in their nonnative cities, and hence they don't really like investing in car liabilities. To meet the demand of this emerging trend, various companies are putting the hands into this business of self-drive rental. we have seen a large change in the mobility paradigm, from people driven to car- pooling to a sudden tilt towards the recent entrant which is self-drive IOT based Car rental industry which is the next potential unicorn.

Global car rental market

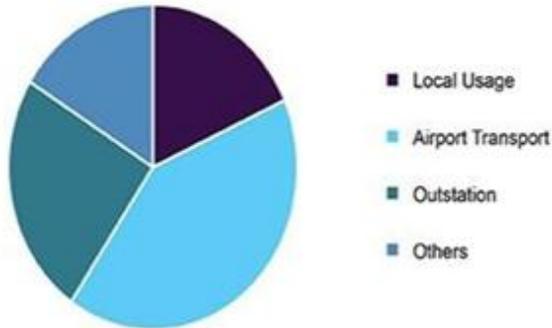


Fig. 2: Survey of Usage

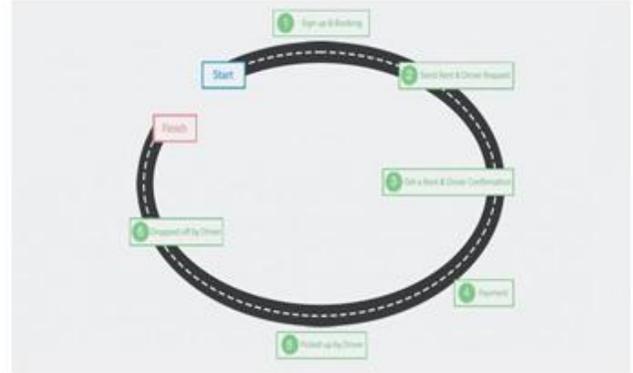
*B. To understand the working of the industry*

*1. Policies*

Companies have Policies which have to be followed by contain terms and conditions. Policies of the companies in this industry particularly is somewhat similar of all the companies in majority of ways, though there are few exceptions which make each one of them differ from the other. Further the policies are sub-divided into various categories. This is an over view of basics of policies which usually companies have.

*(i). Eligibility*

The driver of the car also has to fulfill some condition. The first and foremost important criteria is of age, member must be of 18yrs older or above. Member must possess a valid Light Motor Vehicle (Non-Transport) Indian license and Aadhar card. Must have Here is no minimum amount of time that an individual license before reserving a vehicle Members must have had no alcohol or drug related driving violations are accepted through credit card, debit card or net banking only.



*(ii). Fee Policy*

Cancellation charges are charged according to the policies of various companies, usually cancellation made more than 24hrs before booking start costs around Rs.200-500. Within 24hrs charges 50% of the booking value or Rs. 200 whichever is higher.

*(iii). Member Agreement*

Only active Member in good standing, as decided solely by the company, are allowed to drive the vehicles. Non-Member is expressly prohibited from driving the vehicle at any time. Member holding effective driving license, uploaded on the Website and approved by the company, may drive a vehicle that has been reserved by another company Member with the permission of the Member having carried out the reservation[15].

*(iv). Privacy Policy*

Collection, Storage and Use of Personal Information is done when you apply for a company or maintain they must provide personally identifiable information such as: Your name, age, gender, photograph, contact preferences telephone number, including permanent and current residential addresses, e-mail address, any other item of information, such period as is defined under the notice.

Which you use to access the website, any another information that you provide during your registration, access to the services through the website, and proof of identity, as determined under the company's membership agreement.

## VI. PROPOSED WORK / COMPETITION WORK

### • Introduction

this chapter we will discuss more in details about the system design and implementation of the web base online reservation system. In the system design and application implementation, design, architecture we will provides more advantage develop technique and further with visual diagram.

### • System Flows

In the system flows will follow for the online rental vehicle system and it will be discussed in details with the help of Use Case Diagrams and Sequence Diagrams information. The Use Case is used to represent distinct pieces functionalities of whole system in a graphical and overview in terms of actors and their goals and any dependencies between them. In part of main idea is will represent which actor is performing for what system functions, and also will describes the roles of actors in the system.

### • System Requirements

In the development system we will refer to the develop phase and will follow the certain requirements in order to make work more efficiently.

#### Hardware Requirements

In hardware part we will suggest used Intel core i5 Processor (center unit processor) to run for sever web base. the reason for this is how much space we need to application. The amount of RAM (Random Access Memory) that is required depend many factors such as requirement to other services, frequently accessed content files, operating system paging files and the web service application.

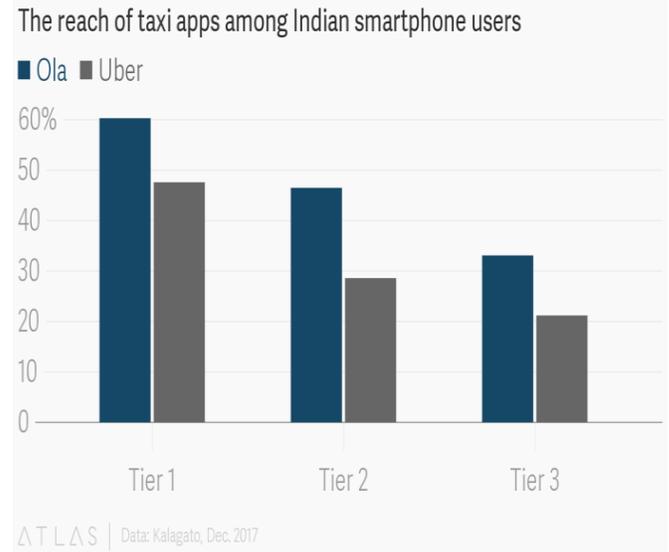
#### Software Requirements

In software Requirement will used MYSQL to be save data. Because MySQL has its built-in command prompt window to run the required commands.

It is recommended to use SQL Wave 5 which makes it easier to create, edit, update and delete MySQL databases with its powerful GUI (Graphical User Interface)

### Technology Usage

#### (i) IOT based Car rental applications



**Fig. 3: Rental using taxi App**

#### (a). Basic Features

Check the different types of available cars in proximity. Along with the use GPS for accurate location tracking to set pickup/drop location. And also, to see ETA and driver details with the one-time addition of user contact and payment details plus and additional feature of an SOS button.

#### (b). Location Services

Features like the real-time tracking is beneficial for the company to locate the driver and the car. It also helps the customers while booking a ride.

#### (c). Seamless on Boarding

Allow users to quickly login and get started with booking a ride within a few seconds. Provide support for social logins.

#### (d). Push Notifications

Real-time notifications for customers, in order to stay updated about the important stages from booking confirmation to final payments.

*(e). Review System*

Get useful feedback from the customer on their IOT based Car rental experience and in order to continuously improve the service[16].

*(f). Payment Integration*

It ensures that all major forms of payments are integrated in the vehicle rental app. These may include debit card, credit card, net banking, and new age payment methods like mobile wallets and UPI.

• **Industry Analysis Matrix**

Qualitative analysis	Quantitative analysis
<ul style="list-style-type: none"> <li>• Industry landscape and trends</li> <li>• Market dynamics and key issues</li> <li>• Technology landscape</li> <li>• Market opportunities</li> <li>• Porter's analysis and PESTEL analysis</li> <li>• Competitive landscape and component benchmarking</li> <li>• Policy and regulatory scenario</li> </ul>	<ul style="list-style-type: none"> <li>• Market revenue estimates and forecast</li> <li>• Market revenue estimates and forecasts by technology</li> <li>• Market revenue estimates and forecasts by application</li> <li>• Market revenue estimates and forecasts by type</li> <li>• Market revenue estimates and forecasts by component</li> <li>• Regional market revenue forecasts, by technology</li> <li>• Regional market revenue forecasts, by application</li> <li>• Regional market revenue forecasts, by type</li> <li>• Regional market revenue forecasts, by component</li> </ul>

**Fig. 4: Comparison Analysis**

*C. To Know the Consumer Preference about which Company do they Prefer*

*1. Zoomcar*

The main and foremost choices for self-drive rental car services for which Indians go for is the Zoomcar, with a major share in the Indian self-drive IOT based Car rental market Zoom car is clearly doing wonders.

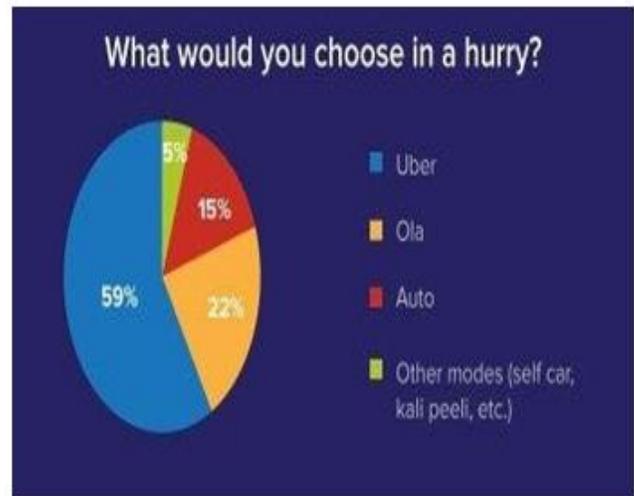
*2. Ola Rentals*

The next up onto the list of preferred companies by the consumers is the Ola Rentals, Launched in June 2016, Ola Rentals provides multiple types of vehicles – from SUVs to hatchbacks.

The attractive and affordable pricing makes Ola Rentals a great option for those who want to attend meetings, shop around the city, go for a weekend trip, or make a family visit to a function, every event could be taken care of by the Ola rentals.

*3. Uber Hire*

The time-based demand service from Uber is great for those who have to make multiple stops while driving across the city. Once their pilot run in Kochi was executed successfully, it launched full scale in Feb 2017 with operations across.08cities[17,18]



**Fig. 5: Pie Chart for rental car**

**VII. CONCLUSION**

*1. The Problem and Solution-* The problem that undergo for Rental was a lack of real time car renting for their customers. They wanted a website that would allow for users to purchase their service with ease and admiration. Customers should have been able to rent and view vehicles with or without logging into the system. Requests should be transferred directly into the database and displayed on the software within the company building to allow for a proper response and review to commence. The solution was to provide Rental with an user-friendly web application that would allow for customers to access and use on a wide range of devices: desktops, laptops, mobile devices, tablets.

2. *The Team and The SE Process*- The Software Engineering process we used was the spiral method. In this method, we start in the middle of the model, and spiral outward, allowing all departments working on the software to be an active part of every aspect of the engineering. Each individual department will be able to work and test during the concept development, system development, system enhancement, and system maintenance phases of development.

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