Transportation and Logistic e-commerce Solutions

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ABSTRACT

The study aims to create an online Transportation and logistics e-commerce solutions named Commove to make logistic, car renting and carpooling in one place. For this purpose, we have used five phases of life development including planning, analysis, design, implementation, testing using PHP 5.0 programming language and version MYSQL database and frontend with html, CSS, and bootstrap. According to the analysis, this system can deliver the rented car to user within hours, help in doorstep logistics courier, save Environment by giving carpooling option and can save lot of paper works by doing this all online.

Keywords : Transportation, Logistic, Carpooling, Renting

I. INTRODUCTION

Earlier when people use rent car they have to go through many paperwork and verification process and when it comes to urgency it was not possible back then. When we talk about logistic and courier service customer had to come office to submit their courier for shipping which takes time and paperwork also. [15] When it comes to carpooling, earlier people do not know about it, but now it is a necessary due to increase in pollution and all people should use this service. By keeping all those things in mind, we have created an online Transportation and logistics e-commerce solutions named Commove to tackle all these problems. Our main aim is to make an online system where customer can easily choose which service, he/she wants without going through different apps. Carpooling platforms, anyway, not only target users of rides, but they also target car owners offering those rides.

The organization of this document is as follows. In Section 2 (**Business Model**), We give detail of how our business Model is different from existing model and what our unique selling point which makes our web-app unique from others those who are on the market. In Section 3 (**Methodology**), We have discussed how our web-app is going through development life cycle from planning phase to testing phase. In Section 4(**Conclusion**) we have discussed how our findings and webpage going to help the customers in long term.

II. BUSINESS MODEL

In market there are many companies which are providing these services (logistic, Car rental, Car Pooling) in the market but the problem for the same

is user had to visit particular website or application for every service which results in time consumption and sometime user get confused, which website they have to visit so that they can get quality services, so we have provided all the mentioned services in one Web application.

There is no software, application and website in the market which provide all mentioned services at one place.

A. Courier and logistic Services

In the existing system there are many companies which are providing this service in the market and they are good competitor in their field the following companies are: -

E-com express, Gati, Amazon supply chain, Blue dart, E- kart, DHFL, Shypr etc.

The main problem with existing system is many of these companies provide doorstep services only to e-commerce websites. The companies which are not working for Ecommerce the user must visit their office to handover the products which consumes lots of time.

The only company which is providing doorstep pickup and delivery services is shypr but the main problem of shypr is it is not working in India the environment of shypr is working in USA. [15]

What makes our product unique is that we have provided doorstep delivery and pickup of product without the limitation of minimal cost and weight of the product which provide convenience to the customer and security to their products. Our focus is also considering rural areas in India.

Our logistic service will provide: - [1] [14] [15]

1. Physical services
- ✓ shipping
- ✓ packing, covering the plate, re-packaging, labelling, plastering
- ✓ co-packaging (re-packaging and integrating a few products into pallet units, preparing promotional sets in the form of multipacks).

- ✓ co-operation (final integration and final termination of a product from parts submitted by multiple manufacturers to specific client orders)
- ✓ delivery integration, integration, and packaging
- ✓ On-time orders delivery
- ✓ Managing return packages
- ✓ waste Management
- ✓ Managed delivery service
- ✓ distribution in the market

2. Maintenance services (additional services):
- ✓ logistic counseling
- ✓ inventory stocking
- ✓ measurement and quantity control assets
- ✓ service after sales
- ✓ manage client orders

3. Information services:
- ✓ The provision of information on the trading and retail market, as well as the company's strategic policy, in a manner consistent with the strategic and operational management process.

4. Financial services: [1]
- ✓ insurance
- ✓ financial deals
- ✓ salary transaction
- ✓ sales commission
- ✓ financial documents

B. Self-Driving Car rental

As same as courier and logistic services we have also a service of self-driving car rental in it, we will provide service self-driving car rental in which we ask from owner of vehicle who want to rent their vehicle from our application, and we provide those vehicles to the customer who has requested for the vehicle.

In the existing system there are many companies which provide self-driving rental vehicle in the

market the following companies or website which provide self-driving car rental are: -

Zoomcar, Avis, Myles, Revv, Kayak, etc.

The problems with these companies are they are not providing their services in the small towns and hilly areas. Even some of these companies are not provide services in India. The only company which covers most no of cities in India which provide this service is Revv.

What makes our product unique is that we will provide services in small towns as well as small duration as for 1 hour and customer can request from anywhere in India and can submit anywhere in India at our submit station or a request vehicle pickup at extra charges. This will become our USP (Unique Selling Point).

We also provide an option of driver if customer wants a driver from our side, we will also provide driver with vehicle and in this case if any damage occurs by driver then repairing cost will paid by company.

Our car rental service is designed to meet a wide range of customer including commercial clients. For commercial clients, we provide fast, efficient car rental services to individual customers, 24-hour road service, credit protection, and effective accounting of a client's business at a competitive price. For commercial customers, we provide a competitive measure of the required car size and style, as well as services related to driving directions and a 24-hour road service. Additional services, such as increased credit protection and loss or foreclosure, are available at a slightly higher price. [2]

We are planning to add membership plan to car rental service so that those who our regular customer can pay less for all the upcoming rides. We will also provide advance delivery of vehicle at their doorstep. On station renting begins with exit from a specific station where the customer signs a contract and ends with a simultaneous entry or a different station where the vehicle is returned. Exit data includes scheduled entry and rental duration. [3] [12]

Employment earnings are based on a daily rate (multiplied by rental days) and additional services, e.g., insurance premiums, fuel, or additional equipment. In the event of an upgrade, the revenue is based on the number of vehicles initially reserved. Generally, the rate may depend on factors such as the time, day of the week, or special contracts with company.

The standard policy of car rental is to accept passenger car bookings without check - however, these bookings do not usually bind both parties. Finding the highest level of services, especially providing all customers booking a car with the requested team (or upgrading), is very important. While this is of no use in the short term in some cases, a high level of service is essential in building long-term customer relationships in competitive markets. [3]

Achieving high utilization of vehicles is a major goal in the rental service but nevertheless requires the proper implementation of operational procedures. According to our research, there is a high level of uncertainty in daily routines. For example, there may be a car entry delay, returned vehicles may need to be repaired, bookings may expire when no customer appears, or more incoming customers may arrive unexpectedly. Balancing supply and demand throughout the day is complicated by this uncertainty. We are planning balancing by simply managing the distribution when the customer arrives - with a certain level of planning by making an equal booking pool available for different groups. [3] [13]

C. Car Pooling

This is the most demanding service in the society. After implementation of this service, we can be able to reduce pollution as well as reduce the load of fuel cost on the pocket of customer. As the cost of fuel is

get shared among two people as a result the fare cost also get reduces.

This service is also considered as the ace of the transportation e- commerce industry. Some of the industry are also considered it as the revolution in transportation e-commerce industry.

In the existing system there are many companies in the market which provide such service in the market, some of these companies are Bla-Bla car, Uber, Lyft, Go jek, Libre taxi, Mobi coop, Etc.

The major problem with existing system is the most of these companies does not provide this type of services in India. Most of these companies are not known by the people. [10] The only company which is famous for this type of service is bla-bla car.

Since bla-bla car is also not provide these services at very wide area. This company work in very few cities of India. Due to above mentioned problem most of the customers are not able to have this service.

What makes our product unique is that by considering above mentioned problem we have implement some solution like [11]

- ✓ Peer to peer communication between customers.
- ✓ Online payment details.
- ✓ Wide area coverage for transportation.
- ✓ Focused on small towns and cities like Delhi where odd- even concepts exist.
- ✓ Real time traffic information
- ✓ Best route search based on traffic information
- ✓ Integration with public transport and parking information
- ✓ Pre-booking parking
- ✓ Ad-hoc travel arrangement
- ✓ Use of previous experience data to estimate take-up time · User profiles and credit processes. [4]
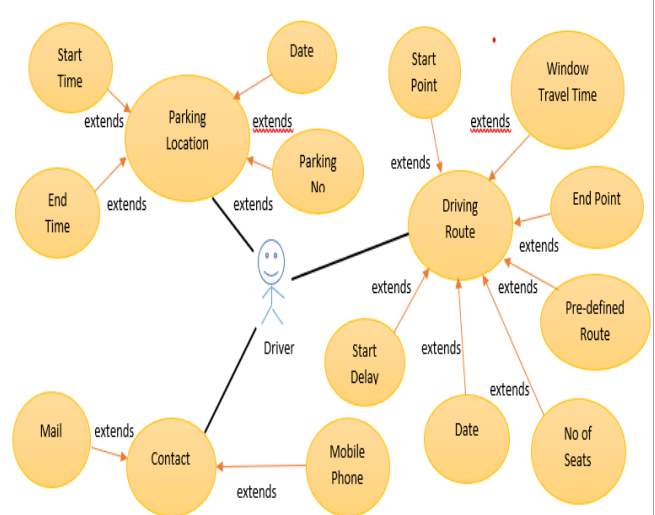

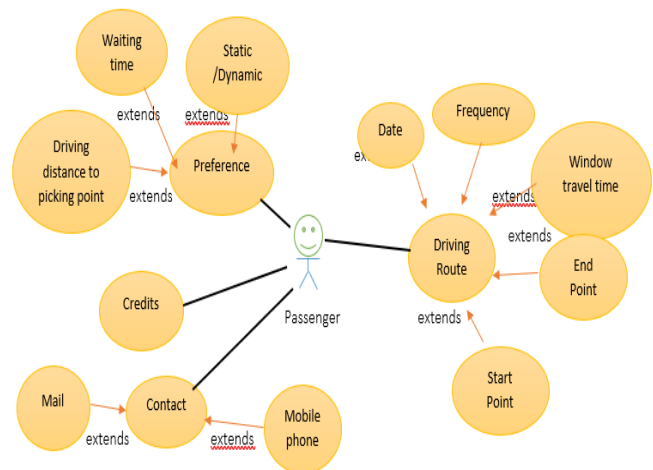**Figure 1**. Use Case for car-pooling driver profile [4]

Figure 2. Use Case for car-pooling passenger profile [4]

III. METHODOLOGY

The method used to build commove system was System Development Life Cycle (SDLC). [8] [9] SDLC is a method for applications to apply to the construction of an information system. SDLC tools use diagrams so it will be easy to understand, its sections are related. When changes occur in all phases of the system when they do not recur, the stages of the SDLC are simple. [6]
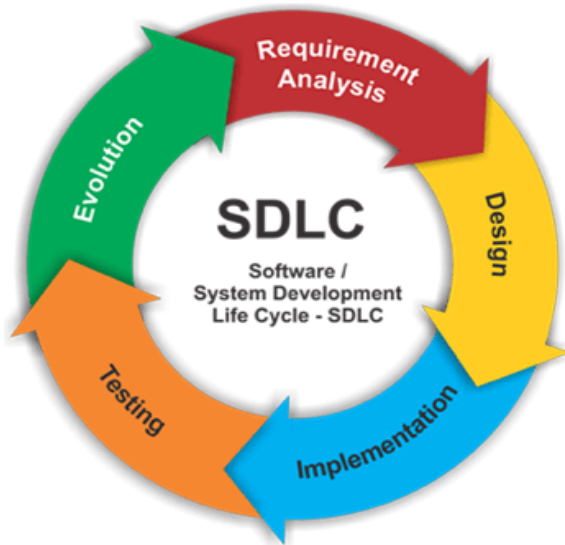
Figure 3. SDLC Lifecycle [6]

A. Planning phase

The first phase of the research is to develop a knowledge plan aimed at identifying key issues and issues that arise in the operating system and for the purpose of analyzing the design and construction of a system that focuses on the transportation and logistics e-commerce system.

B. Analysis Phase

We have analyzed how the app going to manage, workflow and how will it going to perform on different scenario. System analysis aims to find the right form for a system researcher built, taking into account the various aspects of the issues and needs that exist in the system as defined in the plan.

TABLE 1. SYSTEM COMPARISON ANALYSIS [5]

Running Business Process	Proposed System	Results to be achieved against the proposed system
Automatic or user-friendly user data collection using the bookkeeping process first and then computerized.	User's data collection is using online e-transportation system application, so the user data has input directly into the application online.	User data is neatly organized, securely, and stored in a database for company viewing and management.
Car rental and logistic process by user is still using form in the form of paper media.	Car rental and logistic process using web-based online trans-portation and e-commerce system application which data stored in the database online.	Vehicle rental and logistic and its login process will be neatly recorded, secure and database stored for company viewing and control.
The calculation of rental income is done by calculating the rental receipts by hand and recording them in the rental book	The amount of the automatic rental fee in the online car rental web-app and stored in an online database	Create efficiency, time, effort, and cost. Employment details stored neatly and securely in a database for company viewing and management

C. Design Phase

We have used several tools to create a system design i.e., process design flowchart for user, and Data Flow Diagrams (DFD) of transportation and logistics e-commerce system.
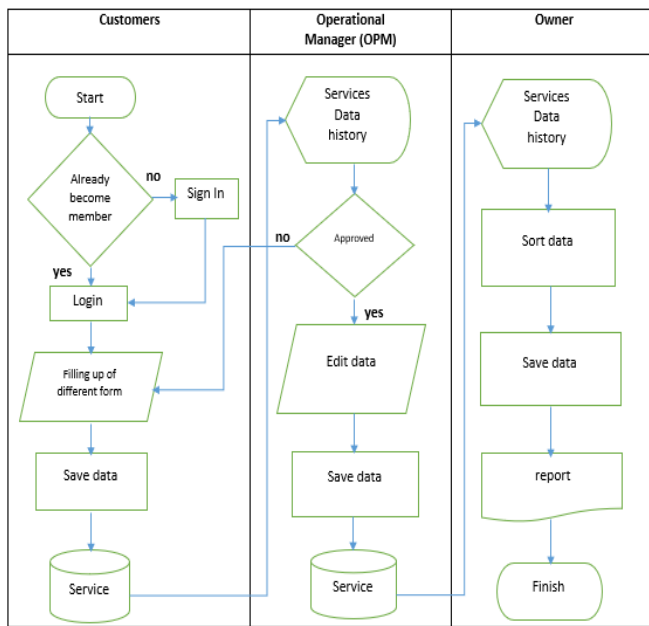
Figure 4. Transportation & e-commerce Flowchart [5]

Databases Design: After designing the proposed system, we designed the data using the Entity-Relationship Diagram (ERD) tool. Explaining the relationship between the existing businesses in the DFD. The design of the app menu layout is intended to determine menus required in the advanced application for us to use the STD (State Transition Diagram) tool that describes the migration from the system menu so that the app's custom menu settings can be streamlined. [5]

Figure 5. DFD LEVEL 0 (ZERO)

Application design: We used the state diagram as a tool to provide structural information, we have created the design so that user can easily navigate within the app without any problem. The design aimed to find the ideal form of display applications, so help users (user friendly) in communicating with the system.
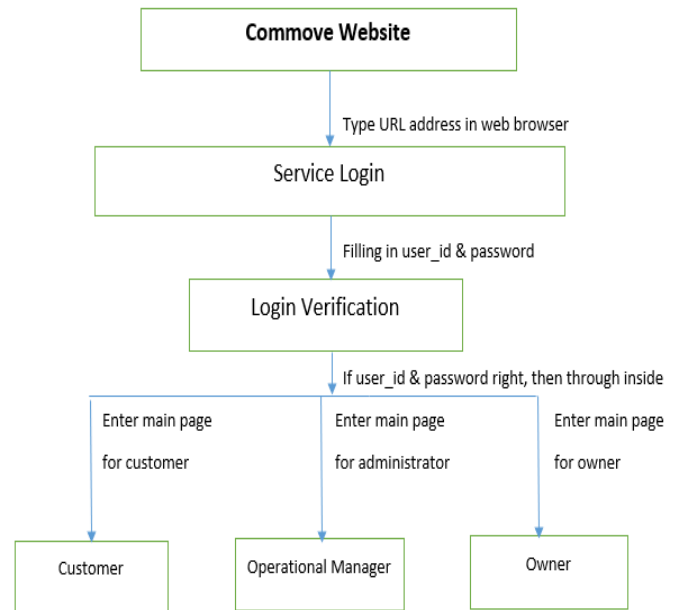

FIGURE 6. ENTITY RELATIONSHIP DIAGRAM [5]

D. Implementation Phase

The next phase is implementation. We have planned, to interpret the system application design into programming language PHP, MySQL for database and framework in web implantation.

Hardware Specification

The minimum hardware requirements are:

a. Server Side

1. Single CPU Tower Server
2. Processor Onboard Intel®
(3.0 GHz, Cache 6MB)
3. Standard Memory 4 GB (4x 1 GB
5. Video type Integrated
6. Hard Drive 500 GB

b. Client/ User

1.Processor 1.6 GHz
2.Hard disk 40 GB

3.RAM 512 MB
4.Monitor
5.Keyboard
6.Mouse
7.Internet connection

c. software Specification

a. window 10
b. Xampp Web Browser

E. Testing and Use

Before the system can be tested, the system must be free from errors; free from errors it is necessary to test for possible errors such as language errors, logical errors, and an error analysis system. The tests performed on the transportation and logistics e-commerce System operating system include a whole menu of programs, processes, and report preparation. These tests are known as the testing of white and black boxes.

TABLE 2. SYSTEM TEST RESULTS [5]

No	Test	Expected Result	Result
1.	Login	Enter to application menu in appropriate access	succeed
2.	Input, delete, and edit User data	User successfully stored into database, deleted, and edited	succeed
3.	Input, delete, and edit Rental History Data	Rental History data successfully stored into database, deleted, and edited	succeed
4.	Input, delete, and edit logistic data	Logistic data successfully stored into database, deleted, and edited	succeed
5.	Input, delete, and edit Credit Card data	Credit card data successfully stored into database, deleted, and edited	succeed
6.	Input, delete, and edit Car Pooling data	Car Pooling data successfully stored into the database deleted and edited	succeed
7.	The process of addition and subtraction number each service history of user	Services data increased when the user input and decreased when administrator or owner refused or deleted data	succeed
8.	The process of data searching	Data successfully founded and displayed according to what is sought	succeed
9.	The process of data grouping	Data successfully grouped and displayed	succeed
10.	Logout	Exit from application menu	succeed

IV. RESULT

By going through System Development Life Cycle (SDLC) we have created a Web-app named Commove where all the three services that are logistic and courier, Car Renting and Car Pooling can be seen in one place.

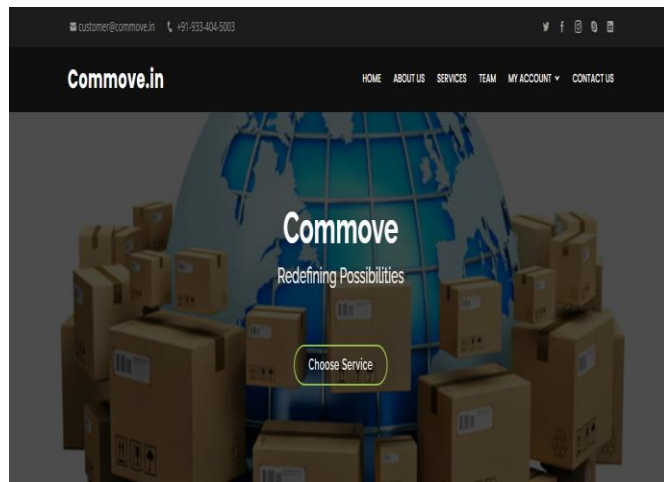User can navigate through different services easily and choose their service.

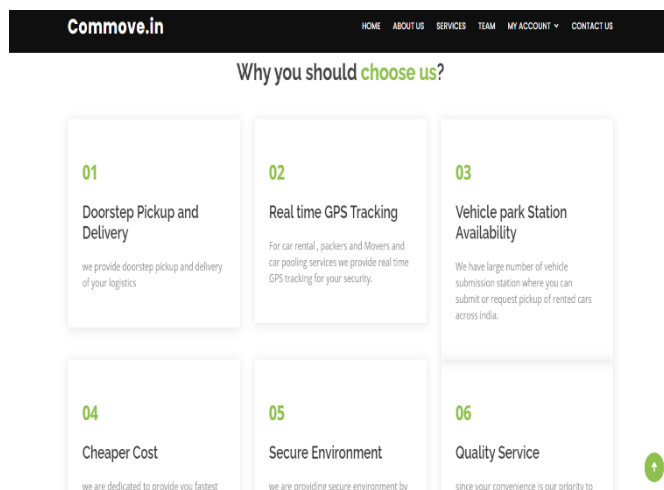**FIGURE 7.** Screenshot of Commove Home Page

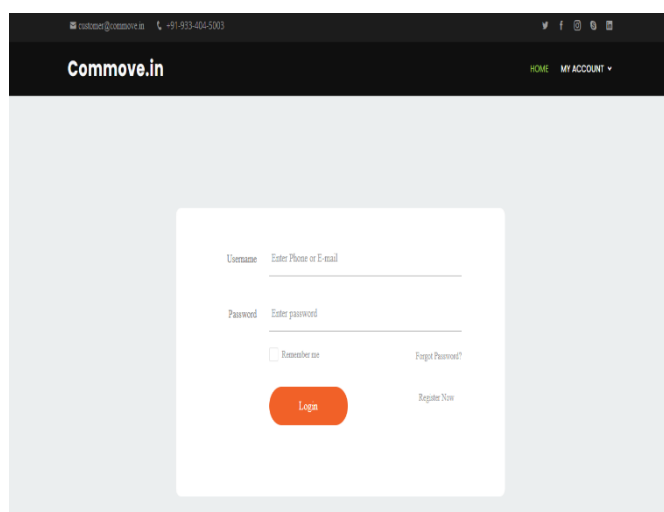**FIGURE 8.** Screenshot of Commove Service Page

FIGURE 9. Screenshot of Commove Login Page

V. CONCLUSION

We make the following conclusion: -

i) With a web-based transportation and logistics e-commerce system, it can improve the efficiency of the logistic, rental data transfer time after using this application. The time difference in delivery becomes shorter to seconds compared to not using a web application. Delivery of logistic is made by courier to the headquarters in about 3 hours and can be shipped immediately, up to a few days after the completion of the verification process. [5]

ii) With the web app, properly maintained data and vehicle rental costs can be controlled and monitored by the operational manager and owner thus avoiding overspending.

iii) Already computerized data storage will streamline the company's process for data storage, retrieval, and reporting, where all data stored in a database create data security and data processing process for monitoring the data is kept clean, clear, and not lost or spilled. [5]

iv) With all service together in a single web app, user do not have to go through different apps for particular service. So, we have made our web page user-friendly so that user can navigate within webpage easily.

v) While P2P carpooling services seem to be a great cover for travel to or from major cities, carpooling platforms can help solve the problem of ageing in rural areas by promoting new outdoor shopping areas. The ageing population will increase the dramatic increase in the number of older consumers, their age-related quality of life. [7]

vi) Another possible reason is related to the continued functionality of P2P sharing platforms and in particular the increase in revenue share. This could lead to a decrease in internal motivation to provide sharing services similar to building a shared economy as an economic opportunity. In the early years of the shared economy, carpool websites were not

professionally managed, and the design was unattractive. So, we have kept all these things in our mind while creating the website. [7]

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