DATA ANALYTICS BASED COST PREDICTION FOR A LOGISTICS APPLICATION

Nandini G[1], Nidhi Srinivasa[2], Rachana Sanjeev Raidurg[3]

[1]Professor, Dept. of Computer Science Engineering, Rajarajeswari College of Engineering, Karnataka, India
[2]Ms, Dept. of Computer Science Engineering, Rajarajeswari College of Engineering, Karnataka, India
[3]Ms, Dept. of Computer Science Engineering, Rajarajeswari College of Engineering, Karnataka, India

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Abstract - *In the present situation, people want all their work to be done with one click. In the current situation, people are scared to step out of the house again and again to get the essentials. A reliable pick and drop service has become a major necessity. We have come across many applications and platforms that deliver things from one place to another, like , etc, that provide pick up and drop services. But none of those applications allows anyone to involve in their services. They have their own agents working for their applications to perform these tasks. These applications charge based on distance and include delivery charges which usually makes the cost high. This makes it tough for a lay man to use because of the charges. We have come up with an idea which is feasible for anyone to use. Let's say a person travels from point A to point B, and he is willing to pick up a package or a parcel and drop it to its destination which is on his way, he can do it using this application. In this application, he can enter his start location and end location and check if there are any packages that need to be dropped. If there are any, if he is willing to drop it, then he schedules a pick-up, collects the package and drops it to the respective location. The main element of the project is calculating the amount to make the payment which will be done using ML or Data Analytics algorithm. The cost is calculated with respect to distance and time.*

Key Words: *Machine learning, data analytics, linear regression, application.*

1. INTRODUCTION

The times have changed, and people are looking for contactless deliveries more than ever now! No matter if you have forgotten something at home such as a charger, mobile, or any other important documents, we are there to pick it for you in no time! Or if you simply want to delegate your daily pick up and drop activities and effectively manage your time, this is a go to application. Logistics is widely recognized as the most complex among business processes. In the contemporary times, it's not money but TIME that's the most valuable asset. There is so much to do and so less time to manage it all. Obtaining maximum profit is also an important aspect. It's very easy to fall into the trap of thinking that you must do everything yourself if you want it to be done right. Trying to accomplish too many tasks often leads to burnout, poor quality and missed deadlines, not to mention time management problems. Hence to overcome these problems, door-to-door services was introduced which does not require additional costs at every stage of the process. This project aims at calculating the minimal transportation cost considering the optimum size of the package with respect to distance. The main objective of this application is to minimize the total cost considering the optimum size of the package and calculate the transportation costs with respect to distance.

2. METHODOLOGY

In this paper, we propose a application which can be used by any common man to make pick and drop services. Here, in our application, the cost is calculated based on distance and time.

A. Application Development

An application has to be developed to support and hold all these features. A web application is designed which acts as a front-end for the users. The application consists of 4 different personas. They are:

- Admin.
- The person who wants to deliver.
- The receiver.
- The person who wants his parcel to be delivered.

Here, the user can perform different operations such as,

- Register as a new user
- Login to an existing account
- Deliver a booking

• Manage Bookings

• Make Payment

B. Aadhar Number Validtation

- It is very important to verify the user before accepting the order to prevent theft. Aadhar authentication delivers an instant mechanism to prove user identity through online authentication. Aadhar number validation will be done during registration as a one time verification process. Once the user is verified the details will be saved in the user account.

- These are the following steps implemented in the algorithm.

    1. Break the original message into 'k' number of blocks with 'n' bits.

    2. Sum all the 'k' data blocks.

    3. Carry the sum.

    4. Sum's complement = checksum. 🔲 Performance of Checksum is given below,

        • The checksum detects errors including odd number of bits.

        • It detects most of the errors involving even number of bits.

C. Manage Bookings

Once the user registers or logs in the application, for the user to schedule a booking, two major things are required, (i.e.)

• GPS Tracking – Here, maps are included for the user to enter his/her pick up and drop location. Once the project is created there will be a link which will connect us with the API. After the API is enabled an XML and java file will be created. We can copy paste the API keys in the XML files which will directly connect us to the goSydney. ogle maps. Usually the default location is Date and Time – The date-time will be adjusted III. SYSTEM ARCHITECTURE into the user local time zone. When serializing a date-time value we use the ISO 8601 string format.

D. Cost Calculation

- This is the last step where the cost is calculated. While the booking is scheduled before confirming the booking the total cost for sending the package has to be evaluated. The cost is calculated with respect to distance and time.

- Linear Regression algorithm is used to calculate the cost.

- Lets consider two attributes X and Y, we can collect a training data and the machine learning data fits a function to this data to learn Y as a function of X. The fitted function is in the form of Y= wx + w0. for suitable values of w and w0.

Both Regression and classification are supervised learning problems where there is an input X, an output Y, and the task is to learn the mapping from the input to the output. The approach in machine learning is that we assume a model defined up to a set of parameters; $y = g(x \mid \theta)$ where g(.) is the model and θ are its parameters.
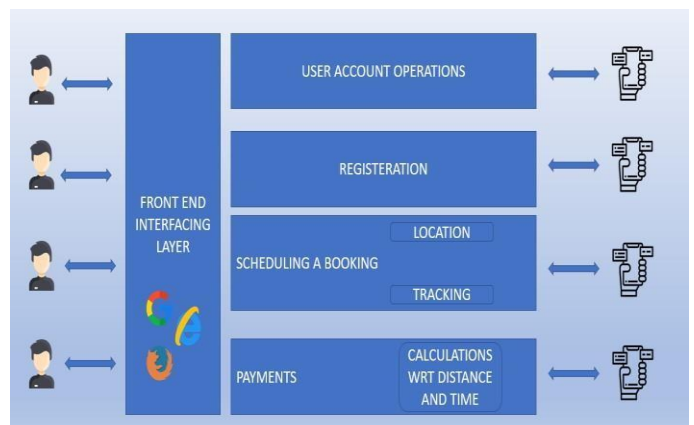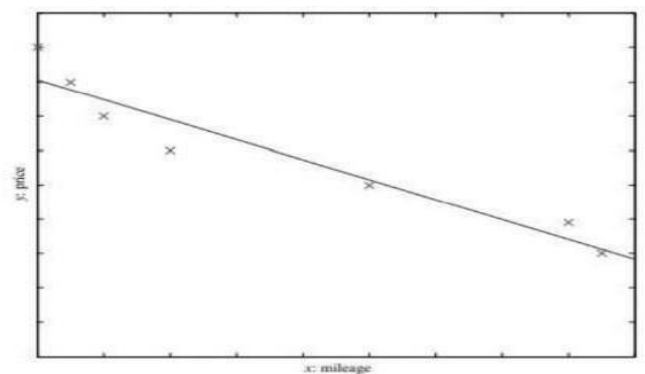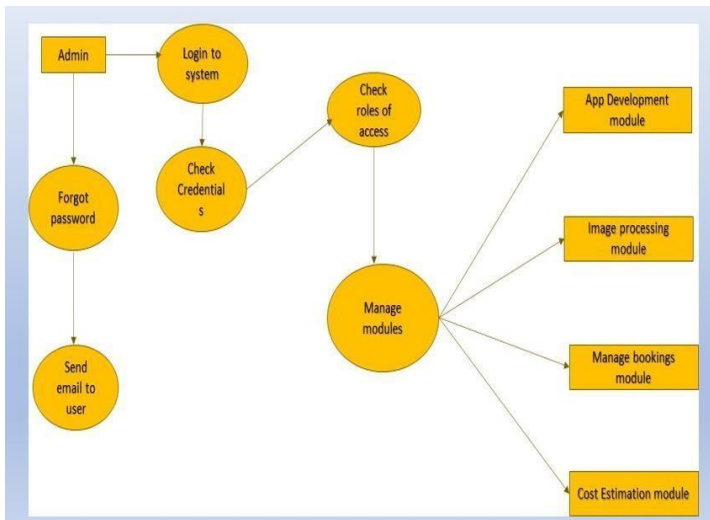

Fig -1: System Architecture

Fig -1: Data Flow Diagram

3. CONCLUSIONS

This is a pick and drop service application based project where any common man can deliver the packages from place to place. Various modules including application development, Aadhaar number validation, manage bookings, cost calculation are included. We can now order to deliver our parcels in the serviceable areas. The cast will be calculated based on the distance.

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