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# Location Based Optimized Food Delivery System

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## Abstract

Ordering the food online and delivering is increased in recent years. Usage of taxi for transportation is also become common. To combine these two in a single platform, this paper presents the online food ordering and takes out delivery system. The work comprises of both Software and website, where several sources like taxis and restaurants are connected together. The customers who have placed their orders in particular restaurants can avail the taxi which passes by the same location to drop/ pick up the passenger by preventing an additional delivery boy to deliver the food. By this system, the drivers are benefited with additional payments based on the number of orders they take and the usage of motor bikes to deliver food is also reduced which helps in preventing pollution. Restaurants and taxis use website and the customers who order food in a particular restaurant use the software, where they can view all the registered restaurants that are willing to avail this service and the food items offered by the hotels. The entire methodology is optimized using pattern search algorithm

## 1. Introduction

In recent years, online food ordering and delivery using smart phones has become an emerging service. In this kind of service the user can get the food ordered online at home, delivered by the particular restaurants. Each time the food ordered is delivered to the customers by the delivery boy either through taxis or motorbikes individually. Though the delivery can be done earlier by the taxis compared to the motorbikes, it costs much. Motor bike delivery is cheaper than taxis, but the restaurants have to pay the delivery boy. So in order to make this service more efficient, we introduce Location Based optimized food delivery which is optimized using Pattern Search Algorithm. This delivery system benefits every sources like Restaurants, Taxis and Customers .At first, it benefits the restaurants by preventing it from appointing delivery boys and paying them, the taxi drivers can themselves take the delivery. Then this service benefits the taxi drivers by being offered with an additional income based on the number of orders taken by them every time. Then this benefits the customers by allowing them to share the delivery charge with the passengers in the taxis. By this service we can also prevent Air pollution as we use only limited vehicles for the deliveries. The user friendly application permits the users to avail the desirable service and the website enables the restaurants and taxis to avail this service efficiently.

## 2. Literature Review

Yan, C.Chen, He.D, Z.Yu and B.Guo - This paper is mainly based on spatial crowd sourcing using Adoptive Large Neighborhood Search algorithm. In this system, the food ordered is delivered through taxis carrying passengers and taxis without passengers.ALNS algorithm is compared with several other algorithms including LNS (Large Neighborhood Search) algorithm in this work. The idea proposed in this work, gives First taxi option that can be chosen for the checking of taxis that is available first in

the taxi pool and the next is Best taxi option that provides the solution by choosing the best taxi from the entire taxi pool. If the request for taking the food from restaurants and delivering to the customer is rejected by the driver the entire process is terminated and the customer has to redo the process.

S. Ma, Y. Zheng and O. Wolfson - This paper presents Taxi ridesharing where people travel from same or nearby location can share taxi sources to a destination. In this method, they used spatio - temporal index, a taxi searching algorithm to quickly get back taxis that are about to satisfy the customer query and then they also proposed a scheduling algorithm for an effective searching.

C.Chen, D.Zheng ,X.Ma, B.Guo, L.Wang, Y.Wang and E.sha - This paper proposes delivering of any packages through taxis carrying passengers and also concerning their quality ride. They proposed two phase framework known as Crowd deliver for the path planning of the package delivery. In the First phase, they used taxi trajectory data for the package delivery. In the second phase, they developed an Online adaptive taxi scheduling algorithm to find the nearby optimal delivery path.

Xu. Hongzhen, T.Bin, S. Wenlin - In this paper they proposed food ordering system that uses wireless technologies where the functions of food ordering is accessed through both pc and mobile devices. They also proposed secure architecture of web services and strategies to ensure communication security.

## 3. Proposed Methodology

- **Administrator**

The administrator is the controller of the system. He can view the registered hotel list and can remove the unwanted hotels from the list.

- **Request**

Administrator is in-charge of sending the delivery request for the taxi. First the food order is displayed. Then the administrator is shown the taxi list that travels in that route. Then the administrator sends request to the taxi driver. Then the taxi driver response is shown as the report.

- **Status**

In this module the taxi drivers response is shown to the administrator. The requested list of records and the accepted list of records is shown here.

- **Food Item**

The new food item is created in this module. It contains the food category, food name, description, image file, and price is entered in this module. The items can be viewed and can be removed or the price can be edited in this module.

- **Orders**

In this module the hotel in charge can view the pending delivery orders and the completed delivery orders. It displays the customer name, address, city and mobile with the food item and bill value.

- **Taxi login Locations**

In this module the taxi in-charge creates the location names and their fares. Then the locations are displayed and can be modified.

- **New Taxi**

The taxi in-charge creates new taxi in this module. It contains taxi name, type, register number, driver id and details. Then it is shown as the record and can be deleted.

- **Book Taxi**

The taxi travel is booked in this module. It displays the location and the taxi list. After selecting the location and taxi the taxi incharge enters the customer name, address and mobile. Then after the travel is finished the booking is stored as finished.

- **Food Client**

The new user is registered in this module. The new user entered the name, city, mobile, email and password. If the email (userid) is available, then the user is successfully registered and can login the application.

- **Food Selection**

The user selects the vegetarian food or non- vegetarian food from the list. Then the hotel list is displayed. After selecting the hotel, the food items are displayed. Then the food item description is displayed and the user enters the quantity and submits. Each selected item is stored in the cart.

- **Items in Cart**

In this module the user views the selected item in the cart. The complete ordered items are displayed in this list.

- **Confirm Purchase**

Then after selecting the items, the customer can confirm the purchase of the items. Then after confirmation, the intimation is sent to the hotel in-charge login.

- **Purchase Status**

In this module, the purchase status of items with hotel name, and food name and price is displayed. The user can view the status of the purchase of the items in this module.

- **Taxi Login**

This module is used by the taxi driver. The driver can login the system with the id and can work in this module.

- **View Request**

Here the request send by the administrator is displayed in the list. Then after clicking the list the detailed information of the food ordered customer details is shown. Then if the driver needs he can accept or reject the request.

- **Accepted Request**

In this module the accepted delivery customer address is shown. So that the driver can know the accepted customer details.

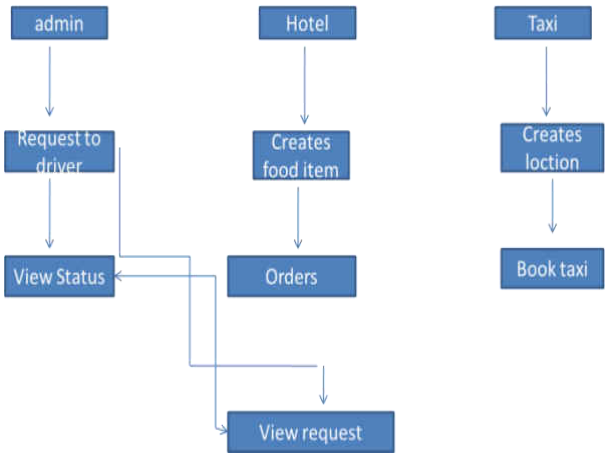


Fig. 1 shows the System architecture

Figure 1 represents the working process of our project. The admin will send request to the hotel and taxi driver after the customer has placed their orders.

## 4. Advantages and Disadvantages

This helps in accurate detection of location and quickly searches for an another option in a nearby location, which helps the customer to avail the optional source as earlier as possible. This system is designed to deliver the food in taxis carrying passengers which travel in the same route in which the food needs to be delivered. If the request of delivering food to the customer is rejected by one taxi, an immediate request is sent to a nearby taxi and the progress is not aborted. The waiting time here is minimum. The customer needn't re do the progress. The food ordered from the far away area from the restaurants can be delivered quickly by the taxis than the motorbikes and moreover the usage of vehicles is reduced thus preventing the cause of air pollution as two process are combined together. In this Method we propose both website and application. The website can be used by both hotels and taxis. The hotels that are willing to share sources, can register their hotel details, address, food items, offers etc. The taxi services can be registered with driver details, location etc. Application is for the customers. The customer can register their address and they are able to view all the hotels registered for this service. They can avail the services of both taxis and hotels.

As this system is combined with both the sources of taxi and restaurants, it becomes complex to maintain and when the food ordered is taken through taxis carrying passengers there might be a chance of disagreement of the passengers who don’t prefer sharing and this become the disadvantages of the system.

## 5. Result Analysis

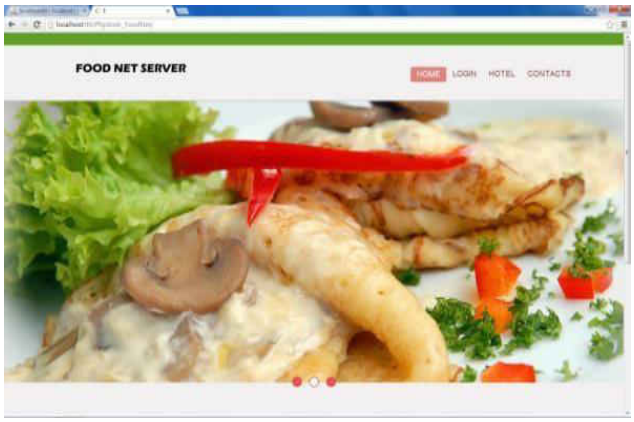


Figure 2 shows the system

Figure 2 represents the home page of the admin side in website. Hotel registration, taxi registration, sending request to the taxi drivers are done through this website.

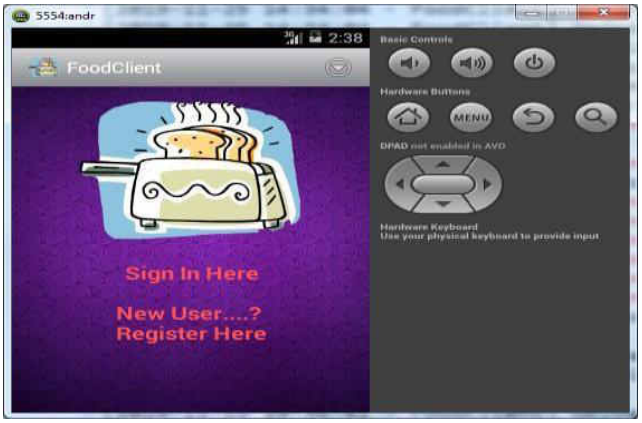


Figure 3 represents the system application

Figure 3 represents the application used by the customers where they can place their orders.

## 6. Conclusion

In this paper we presented a solution for the complexity in online takeout order and delivery. Due to this merging of food network with Taxi network all the food orders from remote places can also be covered and the dropping of the food order is diminished considerably. Due to the lack of delivery boys most of the food orders are dropped. But by this system, there is a chance of delivering the food on time by the taxi that reaches the place. So the food orders are also fulfilled and the traffic due to delivery vehicles is also reduced.

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