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# Abstract

Information Technology (IT) has become an essential factor for changing the lifestyle of the people across the world. It has tied up with different sectors and created ease and availability for the users involved in that sectors including Airlines, Hospitals, Education, Communication etc. In this easy world, it can provide more benefit to the customers if installed in restaurants. In the foreign cities, the restaurant has become the place not only to have food but also to chill out and have a peace and positive environment. The use of technology has reduced the number of staffs and creates the easy environment to the customers.

But in context of Kathmandu, customers in the restaurants are compelled to wait for several minutes to be served in the restaurants. The unnecessary crowd destroys the peace and calmness in the restaurants. Nepali Restaurants have not been able to provide healthy environment for the customers. Thus, we have designed a system that provides the healthy and easy environment for the customers. The customer waiting time is reduced to zero since orders, query are done though digitally through the system we install in the restaurants’ tables and digital payments gateways are accepted. It can provide peaceful and healthy environment to the customers. This system is beneficial to both service provider and customers since the no. of staffs especially waiters are reduced. It is economical for the restaurants.

# Introduction

The service industry is one of the most important industries. Restaurants has become the one of the biggest components of the service industry. Without any doubt, restaurants business are the one of the most important sector of any country, huge portion of country revenue are generated from this particular sector. Likewise, Restaurants have become an integral part of the daily life of average Nepali salaried class. Rather than staying at home and cooking, people are spending that extra time and money to try new thing in a city which has been getting high standards new restaurant opened with so high frequency in recent times. The constantly changing food habits of a city population Restaurants in Nepal have changed a lot.

## 1.1Present scenario

If we talk about the Kathmandu city, there is a large of numbers of restaurants where large number of people love to go there to taste different types of food. The major places of Kathmandu like thamel, durbarmarg have the highest numbers of restaurants which people love to go where the serving people are done through the waiters and payment is still done physically. This creates a crowd and noise in the restaurant so customers are not able to get relax environment.

## 1.2 Problems faced

Restaurants opened with high frequency in recent times causing lots of problems in a restaurants like the numbers of customers are facing the problem of disordering and disserving of the food by the waiters. Likewise in some restaurants, arrival time of customers is more than the serving time of the waiters where the people have to wait lots of time to be served by the waiters. As there is no digital ordering system which may create crowd in the environment by the customer which disturb other customer while calling to serve them. As the payment system is paper based, it also create problem in a payment system.

# Background

As the restaurants industry increased which helps to boosts the development of the country in the faster way but also in same manner, the restaurants and the customers are facing lots of problems. The customers are not satisfied with service provided by the restaurants. The service provided by the restaurant is so primitive which leads the customers to wait for the longer time as the expected to get served. Due to the human based service it create crowd in the environment and the customer have to call the waiter time to time to get served and also to do payment. Due to this type of problem, the high chance of decreasing of the customers in the restaurants. The restaurants industry can be better services, facilities to the customers, guests using the IT and IT related tools in them. Use of information technology makes the tasks easier, faster, reliable, and cheaper in the restaurant network.

## 2.1 The requirements for implementation

* Skilled Manpower
* Technical customer
* Internet availability
* Existing non IT service methods are to be replaced by IT tools.
* Budget for change.

The skilled manpower needs to be there for the IT implementation in any sector. A person should be known to the technology and the devices. The model of the IT tools that is provided in certain department should be known to the customer and the user can access to it to have service by them. Technical customer refers to the customers that are already known to the IT and the use of IT tools. The provision of Internet is to be everywhere around the area of services.

## 2.2 Goals to achieve in Restaurant

* Faster services
* Customer care help option
* Technology based services
* Digital services and payment
* Active interaction between service provider and customer

## 2.3 Possible constraints for the system

* Network security
* Professional manpower
* Update and replacement of old technology
* Data backup
* Complete IT plan

# Literature Review

Xinhua news agency reported on Saturday, the Naulo Restaurant, Durbarmarg, uses five robots for their service to the customers which was developed by Paaila Technology, a Nepali company, specializing in robotics and artificial intelligence (AI) technology. It is also the latest approach for the digitalizing the food serving method in the valley. They are user friendly and easy to access. International Research Journal of Engineering and Technology (IRJET) published a report on 12th December, 2016 about the digital smart system for the restaurants using the android restaurant applications for the customers from where they can order food, pay bills and update the parking of their vehicles. They studied the possibilities and the system architecture for the implementation of the system.

Academic project and Research of some Indian students (April 27, 2007) published on [www.ece.rutgers.edu](http://www.ece.rutgers.edu) on digital smart system for restaurant also states for the system that uses a web based hotel UI that gives permission to the authorized user i.e. id and passwords are assigned to the customer and they are accessed to the services of the hotel including ordering, cancellation, query, customer help section, waiter, cooking section, Manager etc. The ordering and services are carried out through the waiters. The tables where they seat are chosen and the service begins. They order some food, the waiters sections passes the ordered foods to the cooking section, after the food is ready the ready message is passed to the waiters and waiters sends some busboy to carry the food to the customers. The waiters checks the receive message from the customer and thus the order is completed. The payment is carried out though the digital payment gateways or physically to the cashier.

Thus, the different research papers and report suggests the need of the digital serving and payment system is the need in the restaurant in the city like Kathmandu. The city gets more sophisticated and the people get pleasant environment while the digital service is applied in the restaurants.

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# Methodology

In the research process, the identification of the problem and the analysis of the possible solution method are identified through different methods including national and international websites, online blogs, newspapers, articles about the history and present conditions of restaurants in the major cities in developing and developed countries.

The solution methods are also gathered from the different resources and analysis of simulated hotels among our team members and solution methods are found out.

## 4.1 The components of the study

* Literature review of the projects related to restaurants in Nepal from government, private, and international agencies.
* Review of the Restaurant Entrepreneurs’ views on the blogs and articles.
* Reviews of the interviews of the related personnel.
* Analysis of status of nearby cafes and restaurants near Baneshwor and Jawalakhel.

# Solution Model

Waiter less system in a restaurant includes a very minimal staff in which customers’ orders could reach the kitchen without the aid of waiter.

## 5.1 Implementation steps of the system

1. A database to store the final orders.
2. Admin to manage all the processing of the restaurant.
3. Devices on table, these will be used by the customer, to place their order.
4. A device which will be used to flash orders in the kitchen and to take input signal when the order is done.

### 5.2 Requirements

#### 5.2.1 Network Security and Data back-up

A private network is created to have the privacy of the data within the system. The data is not shared or published to any public media. The data of the system is stored for the 30 days in our storage devices (hard disks) and it is automatically erased to store newer data. So, in any emergency case, the restaurant can share the data to the verified agency or authority.

#### 5.2.2 Renew of Hardware and software

The technology devices have a lifespan, no matter how advanced they are. Out-of-date systems are harder and slower to handle. The best way to resolve a common IT problem, such as old technology, is the implementation of new technology as well as the fast installation of this technology. Thus, the outdated software and hardware components are replaced in the restaurant.

Thus the deployment team and the restaurant admin panel are always there for the update of the system or immediate debugging in case of accidental problem during execution.

#### 5.2.3 A complete IT plan

An IT plan and a managed IT services team are important for better services. It needs greater plan and strategy for smooth performance of IT in the Organization or department. Managed IT services significantly benefits the system and department. Managed IT services saves the employees’ time, saves business money, monitors for a safer network, brings subject matter experts, and even gives access to more customizable services.

Thus, the complete flow of orders between customers to admin, admin to chef team, and vice versa is not violated. The order placement by the customers, checking the availability of food and instant update in the menu by admin, the ready item notification by the chef is always carried on. Thus, the connection and data flow among admin, customer and the chef team is managed in this way.

# Conclusion

The use of IT in the Restaurant especially online food ordering and payment system can bring the greater change in context of Kathmandu. The service becomes more effective, efficient and accurate with the installment of the devices in the restaurants. The ordering process becomes faster; the customer has a good option of digital billing system. The easier UI of the system gives the pleasant experience to the customers. The paper based and the analog system is removed by the digital system which is good for the society as well.

The customers are provided with the help option in case of any difficulty with the operation of the applications. They can have any query with the restaurant team with any query option in the UI. The cancellation can also be done before confirming the final order item list. After the serve, the bill is ready in the UI of the application and the customer has option to pay physically or digitally. This minimizes the crowd, noise in the restaurant and thus customers can have relax, peace environment.Top of FormBottom of FormReRere

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