

MealyDeals - A Restaurant Automation and Recommendation System

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ABSTRACT

A restaurant recommendation and automation system is a smart food ordering system that enables user to order using a tablet menu instead of normal paper menu. User can also view ingredients for the dish while ordering food and place a request to eliminate some of them. Customers can also play games in the tablet provided while will help them in terms of entertainment during the waiting time till the dish is ready, not only entertainment but also gaining money points through that games which he can redeem the next time he visit the restaurant. This strategy will not only entertain the customer but also be helpful for the restaurant business to grow with frequent visits of customers and more ordering of dishes. The chef can also be able to see the upcoming dishes on a dashboard on his side which will help him with keeping track of orders and serving those orders. The administrator of the restaurant would have a full control on activities like add dish, remove dish, calculate revenue of the restaurant, game control, etc. This system in sense of recommendation will help customers to order food in an easy way but knowing the choices of the customer the system would recommend food based on customer visit, previous taste, seasonal taste, etc.

Keywords: restaurant recommendation, restaurant automation

I. INTRODUCTION

It is known that, in today's market, it is extremely difficult to start a new small-scale business and survive the competition from the well-established and settled owners. In fast paced time, when everyone is squeezed for time, the majority of people are nicky when it comes to placing a food order. The customers of today are not only attracted because placing an order online is very easy and useful but also because they can view into the items offered, price and extremely simplified navigation for the order.

Online ordering system that I am proposing here, greatly simplifies the ordering process for both the customer and the restaurant. System presents an interactive and up-to-date menu with all available

options in an easy to use manner. Customer can choose one or more items to place an order which will land in the Cart. Customer can view all the order details in the cart before checking out. At the end, customer gets order confirmation details. Once the order is placed it is entered in the database and retrieved in pretty much real time. This allows Restaurant Employees to quickly go through the orders as they are received and process all orders efficiently and effectively with minimal delays and confusion

The idea behind this project is to reduce manual work and make the system of restaurants more automated. Following

are the parameters based on which project usefulness can be described:

On users/customers side we are developing an android application that helps customer placing order, after plac-ing order the waiting time till arriving of the order can be made of use by playing games on the tablets provided on each table, the points gained can be converted into money and can be used by customers from their next visit till the validity. Customers are also able to view the offers which will be based on individual basis i.e frequent visits of the customers.

The chef side would consist of a desktop (dashboard) where the arriving orders can be displayed along with the table numbers from which order had come, status of the order that whether its ready or not and time remaining.

The entire control of all this activities would be on admin side where he has the authority to view complete data regarding customers and chef side also has a control.

II. OBJECTIVE

The primary objective of the project is to implement there commender system for restaurant in which we are recom-mending the food to the customer. Our secondary objective is creating the restaurant automation system in which whole ordering system works via user- side app, where communica-tion between the devices (machine) relies on wireless network the food industry. The following objectives will greatly ease the task:

Recommending the food: Whenever we visit restaurant we get confused that which dish should we order, which dish is the specialty of the restaurant so by our system best dish is recommended to the customer.

Automating the process: All the issues that take place in the Restaurant with regards to any Transaction and customers are automated. There is no need to keep Pillars of bills for each Order or reports. A lot of paper work is reduced.

Keeping customer Information: Normally no body keeps track of customer information. But this system allows us to keep customer information using contact less smart cards which helps in increasing the businesses.

Fast Retrieval of Records: The system enables faster retrieval of records pertaining to any customer or menu items or this enables less overhead of pulling the records from pillars of les.

Flexible Reports: The system generates reports based on user conditions thus making the system more users friendly and exible.

Saves Time: All the automation of the processes will ultimately lead to time saving.

This system is an application designed basically for use in the food preparation and delivery industry. This system will allow hotels and restaurants to increase scope of business by reducing the labor cost involved. This system also allows to quickly and easily management of tablet menu which customers can browse and use to place orders with just few clicks. Restaurant staff then use these orders through an easy to navigate graphical interface for efcient processing. Following are some of the features the system holds:

Game option to play - yes or not: The customer after ordering the food will get an option to play game between the waiting time of dish order and dish serve. The customer willing to play games and gain points can accept the option saying yes else can eliminate saying no.

Recommendation - number of visit- example above 5 then off: The customer will get an advantage of offers

if he is a frequent visitor(more than 5 visits). The offers may be in terms of discounts given to customer. Festival/ seasonal based recommendation: Festival based recommendation will be based on festivals that comes on a particular month and that wise the taste would get recommended to the customer.

Registration form for user: Customers visiting first time to the restaurant will be given a registration form to fill for further recommendation procedure to be done by the restaurant.

User cost wise recommendation (database): Recommendation based on cost is the recommendation of food to the user based on his previous range of bills and amount up to which he pays on dining.

Admin - new user add, unwanted dishes remove, bill generation: The administrator would have control to add users, add dish or remove dish and bill generation at the time of payment by the customer.

Game - simple - offer (point gain) - auto stop timer: The gaming section would allow user to play games until the dish is served and the games will auto stop as soon as the dish becomes ready to serve. During the played time user can gain points through games which would get converted into money and can be redeemed by user on his next visit order.

Dashboard - best dishes: The admin side panel would see its restaurants best-selling dishes, worst selling dishes, good rated and worst rated so that the administrator can make decisions based on these records on its menu list.

Feedback form: After the satisfactory eat of the customer he would be given an option to rate the food he was served, which data would be used by administrator for its restaurant's business.

User side - Mobile app: The customer would be provided a tablet/ smart phone which would help user as a menu card, game station and other activities like registration, feedback, etc.

Admin module - order, table number, admin ack to user then game pause: The admin module has a control on tracking table number, admin acknowledgement to user by starting and stopping the game section.

Kitchen side - order, table, ack to admin: The chef would be able to see the orders list by its customers and would acknowledge to customer by changing its status on the screen like ready dish, pending dish.

Single app i.e. single table concept.

Best dish recommendation to another user: Best dish recommendation is a recommendation based on user data collected during the feedback and on that basis the best rated and worst rated would get calculated and recommended to customer the best one.

III. EXISTING SYSTEM

In the normal world we there is a lot of manual work required for management of restaurant and sustaining customer relationship. But using the system of MealyDeals a much of manual work is reduced and customer relationship can retain on long term basis by gaming and offers strategy that is used in MealyDeals. Not only this, the chef side panel in existing system where required to memorize the long list of queuing dishes to server but this system will have everything automated on the dashboard. The efforts of administrator to keep track of its restaurant status regarding success or failure is also managed automatically rather than maintaining manual records of revenues.

IV. LIMITATION OF EXISTING SYSTEM

- ✓ Manual customer record maintenance. Manual food details maintenance.
- ✓ Menu card systems.
- ✓ Lots of labor required.
- ✓ Lack of customer satisfaction handling. Manual or oral feedback acceptance.

V. PROPOSED SYSTEM

Our system has a connectivity with the server to store the user details as well as the menu details. The app is connected to the server via sql database. The android application makes the user to choose from given menu list and selection of quantities. The user can then select from a range of suggested items from the menu to go along with the orders placed by the user. The suggestions can be provided on the basis of timely recommendation, Festival/ seasonal based recommendation to user amp; Cost wise recommendation to users. The application allows users to play game and gain point which will reduce the cost from total amount. Users provide feedback about the services.

Modules of Proposed System:

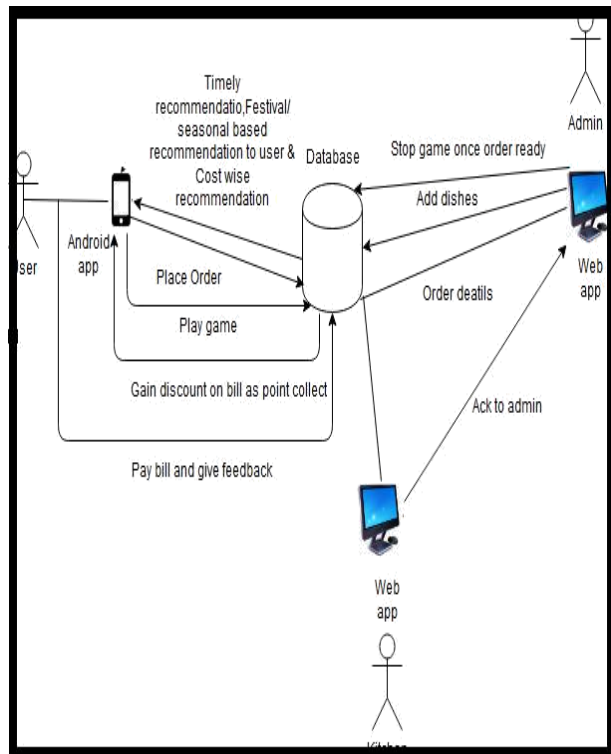


Figure 1. process diagram

- ✓ Registration through android app.
 - ✓ Order food which is provided as recommendation.
 - ✓ Play game and gain points.
 - ✓ Provide feedback
 - ✓ Select food which is recommended.
- Admin
- ✓ Add dishesReceive notication about user order.
 - ✓ Prepare order.
 - ✓ Ack to admin once food is ready to serve.
- Chef
- ✓ Add dishes.
 - ✓ Receive notication about user order.
 - ✓ Admin ack to user then game pause.
 - ✓ Check bill which is generated by system.
- Server
- ✓ Store user details.
 - ✓ Store dishes.

VIII. CONCLUSION

VI. ADVANTAGES OF PROPOSED SYSTEM

- ✓ The volume of manual and paperwork will be greatly reduced.
- ✓ Fast Rate of operation as in making the ordered food available and delivered on time.
- ✓ Flexibility (i.e. it can be accessed at any time. Better storage and faster retrieval system.
- ✓ Errors in the reports will be greatly minimized.

VII. ALGORITHM SURVEY

Association rule mining: Association rule learning method finds new interesting relations between data in large databases. It describes strong rules discovered in databases. Based on the concept of strong rules, association rules mining discovers regularities between products in large-scale transaction data in supermarkets. For example, products placed in supermarkets or stores. In this system association mining will be used for recommendation of dishes to the customers. For example, if a customer comes for dinner and is likely to buy chicken masala dish then it is but obvious that it is a main course and he is going to eat roti with it; So the system will recommend the customer with different types of rotis.

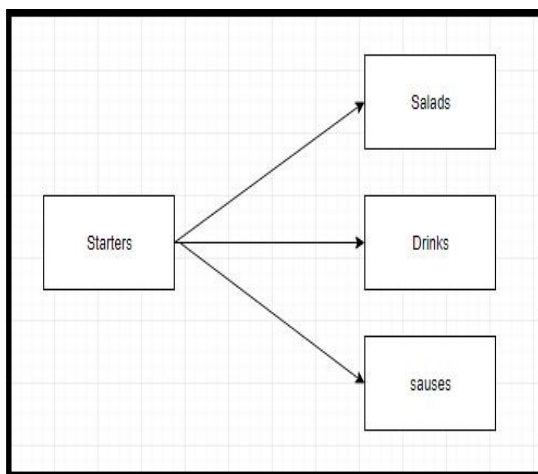


Figure 2. Association Mining

The proposed system is self service automated system that reduce a lot of manual human effort to operate a restaurant. The system also helps in sustaining customer relationship by multiple ways. As a result it completely automate the world of restaurant with advance recomendation system.

IX. ACKNOWLEDGMENT

It has been a sincere desire of very individual to get an opportunity to express our views, skill, attitude and talent in which we are procient to give satisfaction and condence to do or to produce something useful for humankind. A project is one such avenue through which an engineer gives went to feelings and expressions. We sincerely wish to thank our principal Dr.S.A.Patekar and vice principal Prof. Varsha Bhosale for motivating us to do this project. We express our gratitude to our Head of Department Prof.Meenakshi Arya and our project guide Miss.Deepali Shrikhande for her valuable suggestions and inspiring guidance. Her suggestions have helped us in many different ways to complete our project. Her leadership qualities motivated us and depth knowledge of her eld of interest was an addition in getting us prepared to work on our project. She was always present to clear our doubts whenever we faced any hurdles when on the project. She was tremendous patience and always helps us by giving new ideas and clearing our concepts at the same time.

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