Name: Kady Seecharan

Student ID: 816002036

Course Name: Human Computer Interaction

Course Code: Comp 3603

Assignment One

Part A: Project Topic Brainstorming

1) Firstly, one project idea is to design a restaurant automation application which will automate everyday restaurant tasks and services, particularly focusing on the customer experience.

2) Another project idea is to design an airport guide application which will easily help travelers find their desired places. This application will help travelers be notified if their boarding gates has been changed as well as any flight delays. Moreover, there will be a mapping service which will show the route to get from their location to their desired place at the airport.

3) Lastly, another project idea is to design a pet feeder application that connects to an app on the user mobile device. This app will help the user choose the right portions to feed their pet as well as give the user an option to automatically feed their pet from the app or set intervals for the feeding. Moreover, it will analyze how much the pet has eaten as well as the application has a built-in camera to view the user's pet at any time.

Part B: Preliminary User and Task Analysis

Deliverable 2: Justification for project idea one

Most people share the view that waiting for food or drinks at a restaurant can be physically and mentally strenuous (especially while hungry). It will allow both restaurants and customers to save time and money. This project idea is most suitable since it is intended to mitigate or even eliminate the following:
- Waiting time to be seated.
- Waiting time for service/food/bill.
- Poor service / human error.
- Lack of information to those with dietary restrictions.

- Need for a large staff.

Furthermore, the systems used by restaurants have been unchanged for years and this application is intended to provide a better customer experience.
This software will mutually benefit both restaurant owners and consumers.

Deliverable 3: References

Suthar, Y. (2004, August 12). US20040158494A1 - Restaurant automation system. Retrieved August, 2004, from https://patents.google.com/patent/US20040158494A1/en

This source is related to my proposed idea since it is very similar to my proposed design with the use of devices,order preparation messages and payment system.

Yo-Tang, C. W. (2004, September 10). RFID system of restaurant automation. Retrieved from https://patents.google.com/patent/US20060085266A1/en

This source uses RFID systems whereas the proposed system uses barcode reader. Barcode reader need to be in line of sight while RFID uses near system technology. However, barcode readers are less expensive and will be more efficient.

Deliverable 4: Problem Description

Customer Service - First, a user must download and install the application on their mobile device and create an account. After checking reviews and available dishes (menu) of the restaurant on the app, the customer can make a reservation by selecting a desired table and a QR code is generated which is associated with the reservation details and customer account. This code is used to identify the customer when they arrive at the restaurant, confirm their seat and for confirming payment. Reservations can be made a maximum of one week in advance and customers have a grace period of 30 minutes after the reservation time to claim their seats. Both times are adjustable on the restaurant's side of the application. After the grace period has expired, the seats will be marked as available on the system. The customer can pay for their meal on the app.

Once the customer has confirmed their seat at the restaurant by getting their QR code scanned by an employee at the door, the app on the customer's device will give the option to begin ordering. A detailed menu will be displayed with relevant information for customers with dietary restrictions (for example: diabetics, vegans, food allergies). Customers will not be allowed to amend their orders after the chef has started preparing the meal. After a customer leaves, a staff member will clear the table and update the restaurant's information on the application via their staff account. The customer may write their own review, make recommendations on certain dishes and rate dishes on the app. Since each customer will have their own account, writing a review or rating an item is only allowed if the user ordered from the restaurant before.

Management- The restaurant version of the application will also automate certain management tasks. The application must be downloaded and installed to any devices used by the restaurant. The restaurant has a restaurant manager account. The restaurant manager can use this account to approve other members as employees of his or her restaurant. Employees can use the app with their employee account to receive and manage reservations from customers, receive orders from confirmed customers, confirm payment before customers exit the premises and update the restaurants information displayed to customers. Employee accounts are also broken down into several categories including chef or cook and waiter or waitress accounts. If the restaurant's policy allows, employees can use their own devices for accessing the app which prevents the restaurant from having to purchase new devices.

Deliverable 5: Scenarios

1. When the customer arrives at the restaurant, a waiter will be waiting with a device to scan their QR code for the user to choose a seat. After a light will be shown to indicate where the customer must sit. The customer can use the app on their phone to order their food or can request a tablet if their phone battery has died. The customer can search the menu as well as view the menu by categories and dietary restrictions. Furthermore, the customer can view all the ingredients and description of the meal as well as order on the application. This will eliminate the use of large staff, but it is very efficient in the long run as the service will be fast.

2. When the food is ordered, the customer cannot change the order. The customer can pay on the application using the credit card system. This mitigate the use of staff and paying by cash as well as waiting time for the food. The chef will prepare the food and it will be delivered by an automated train. The customer will be able to take the food off the train and consume it. After the customer has finished eaten, the food will be cleared by a waiter.

3. The chef can use the restaurant automation application to view orders placed by customers. The chef can also update the status of food preparation to indicate a meal if a meal is unprepared, being cooked or complete. Moreover, the restaurant manager can the other application users as employees of his or her restaurant and enable them with the privileges of chef or waiter/waitress.

Part C: Design Direction
`
The high-level design approach that will be utilized for this project proposal is the user-centered approach. The restaurant automation application is mainly centered on the customer struggles and restaurant improvement therefore the user centered approach takes into account the clear understanding of the users, tasks and environments and the general consumer experience. This

approach considers the empirical measurements such as performance to scenarios which examine the problems arose and fix it.

The app can be downloaded by the user on their mobile device therefore the restaurant will only have to invest in their own devices for their personal use. However, the staff can use their own mobile devices at work as well if the restaurant permits it. An automated train will have to be built as this hardware which will be used to carry the food to the customer. Each staff and customer will have to obtain an email address to create an account for the app which will be free using any mail service. A database will have to be implemented to keep track of the customers and their orders. A QR code reader will be needed to read the customer's information about their reservation which will be obtained by the restaurant owners.

On the customer side of the application, the customer can add, delete items from their food cart. Additionally, the restaurant manager can add, delete staff as well as create and manage different tasks.