## Charley's
GRILLED SUBS

# Oman franchisee of global fast food chain adopts a RFID-driven KIOSK ORDERING SYSTEM

Customer self-operated kiosks for visual menu selection and direct order generation with time-saving convenience

RFID-enabled prepaid customer loyalty cards

Efficient menu management and order management

Customer benefits through discounts and reward points



## TECHNOLOGY

**Solution:**
EPC Gen2 compliant retail kiosk and loyalty card solution

**Tag Type:**
Personna™ UHF Passive

**Reader/Antenna:**
Xtenna Hybrid™

**Method:**
Multiple Tracking via Integrated Reader/Antenna modules
Single Tracking at kiosk

**Integration Platform:**
 **RFID Middleware:**
  Xtenna™ WebToolkit
  Xtenna™ Studio
 **Application:** Essen RFID's
  Kiosk Ordering System
 **Database:** SQL Server 2005 Exp. ed.

**Tag Manufacturer/Supplier:**
Essen RFID, with US based chip inlay

**Reader/Antenna Manufacturer:**
Essen RFID, with US based module

**Systems Integrator:**
Essen RFID

INSIDE:
Key Requirements
Solution
Implementation
Working
Benefits
Links

For further details contact:

**Essen RFID**
24-B, Jolly Maker II
Nariman Point
Mumbai 400021 India
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**Xtenna™**
Integrated RFID Antenna/Reader

**KEY REQUIREMENTS:**

The client is a franchisee for a global fast food restaurant chain and manages a large number of diverse customers every day. While some customers are regular patrons, others are casual visitors who just happen to be in the vicinity. In order to promote business and convert casual visitors into regular customers, the restaurant offers various discounts and reward points to loyal customers, in the process benefitting both restaurant as well as customer. For this purpose the restaurant required a system that would efficiently handle this process, through smart loyalty cards that would be used by customers to bypass long queues at ordering counters and instead self-operate kiosks for ordering their meals.

Main challenges are:
• Proper management of the restaurant's customer list.
• Proper management of menu items and menu schedules.
• Correct applicability of various discount schemes for different categories of eligible customers.
• Efficient order management to ensure quick deliveries to customers.
• Attract potential customers and induce them to become loyalty card holders through visible convenience and time-saving of self-operated kiosks.
• Keeping records of total revenue generated by the restaurant.

**SOLUTION:**

Essen RFID proposed a loyalty card solution based on RFID technology as the most effective system for running self-operated kiosks. By enabling only registered prepaid loyalty card holders to operate kiosks for ordering their meals, it encourages card membership for regular customers and ensures increased patronage as a preferred location over other competitors in the vicinity.

**IMPLEMENTATION:**

Loyalty cards with in-built PERSONNA™ RFID tags are provided to customers of the restaurant. The loyalty card carries information regarding customer's details, the tag ID and the NFC ID. The cards carry a prepaid amount and have to be recharged when the balance amount is exhausted. A Xtenna Hybrid™ is placed within the restaurant premises to automatically read the loyalty cards of customers. The system requires network connectivity inside the premises and uses MS SQL Server as the back-end database. The front-end is a touch-driven restaurant menu ordering system that runs on the customer-operated kiosk. The kiosk generates a printed order slip at the restaurant when an order is placed by the customer, and automatically deducts the value of the order from the prepaid loyalty card's balance amount.
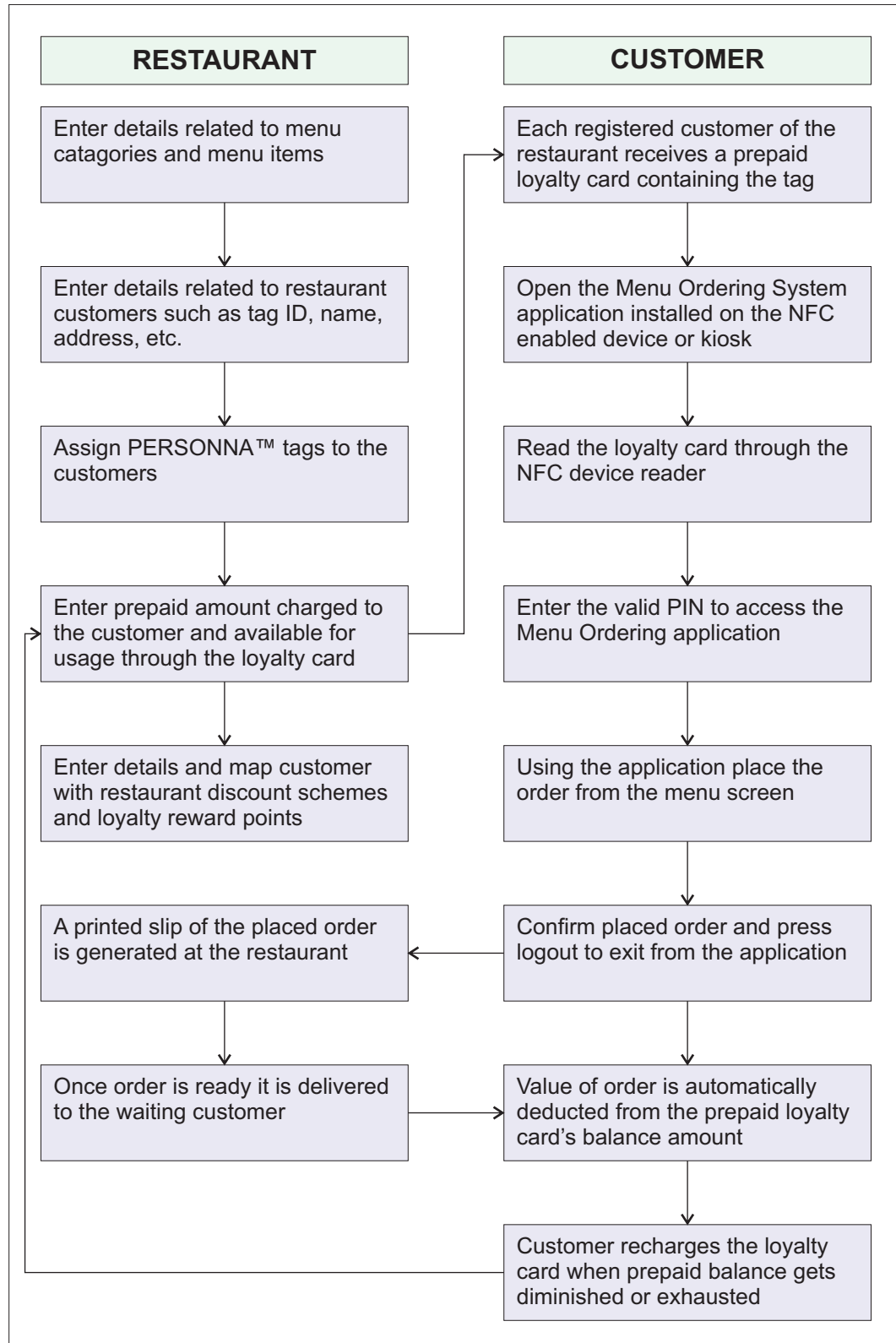
**CASE STUDY**

**WORKING:**

Essen RFID's Kiosk Menu Ordering System functions as follows:
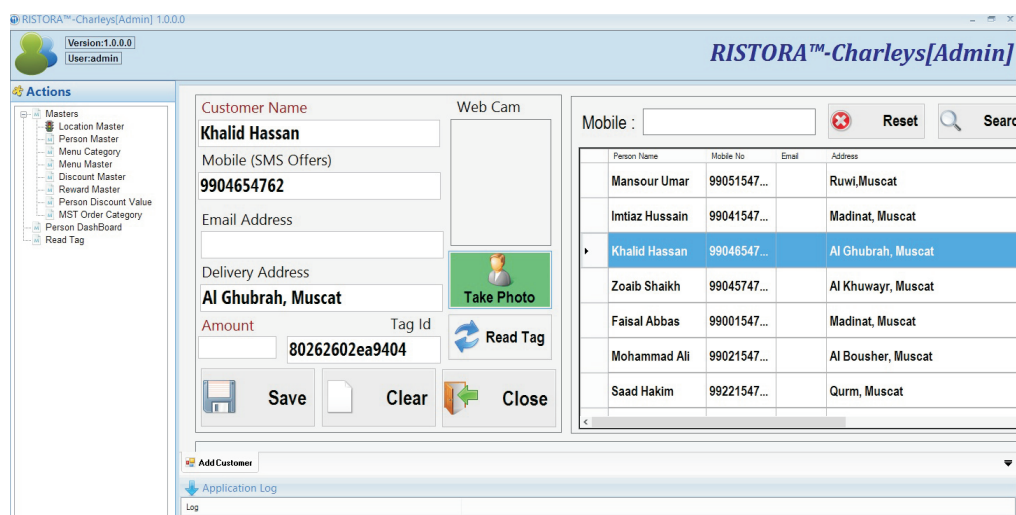
**Flow Diagram:**

| RESTAURANT | CUSTOMER |
|---|---|
| Enter details related to menu catagories and menu items | Each registered customer of the restaurant receives a prepaid loyalty card containing the tag |
| Enter details related to restaurant customers such as tag ID, name, address, etc. | Open the Menu Ordering System application installed on the NFC enabled device or kiosk |
| Assign PERSONNA™ tags to the customers | Read the loyalty card through the NFC device reader |
| Enter prepaid amount charged to the customer and available for usage through the loyalty card | Enter the valid PIN to access the Menu Ordering application |
| Enter details and map customer with restaurant discount schemes and loyalty reward points | Using the application place the order from the menu screen |
| A printed slip of the placed order is generated at the restaurant | Confirm placed order and press logout to exit from the application |
| Once order is ready it is delivered to the waiting customer | Value of order is automatically deducted from the prepaid loyalty card's balance amount |
| | Customer recharges the loyalty card when prepaid balance gets diminished or exhausted |

**CASE STUDY**

**Process Flow:**

1. A customer loyalty card containing a PERSONNA™ tag is provided to each registered customer. Each tag has unique tag ID and NFC ID associated with it in the database.

2. The administrator operating the Kiosk Menu Ordering System enters data into various modules of the system, such as:

**Person Master:** Here necessary customer details such as name, address, photograph upload, NFC ID, recharge amount, etc. are entered and saved into the database.
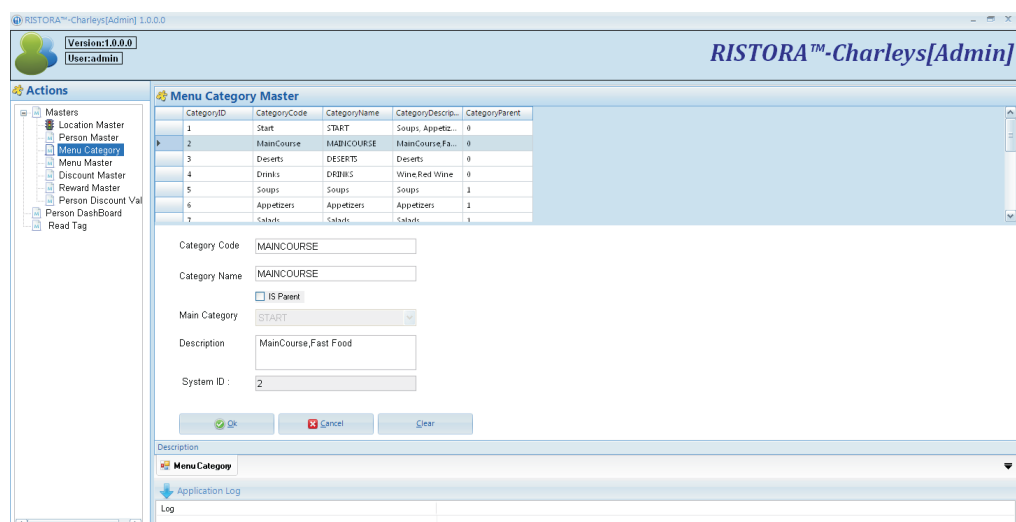


**Menu Category Master:** Here the menu categories heads are created in the database, such as appetizers, main course, desserts, drinks, etc. Within these, sub-categories can also be created, e.g. desserts can have a sub-category such as ice creams.
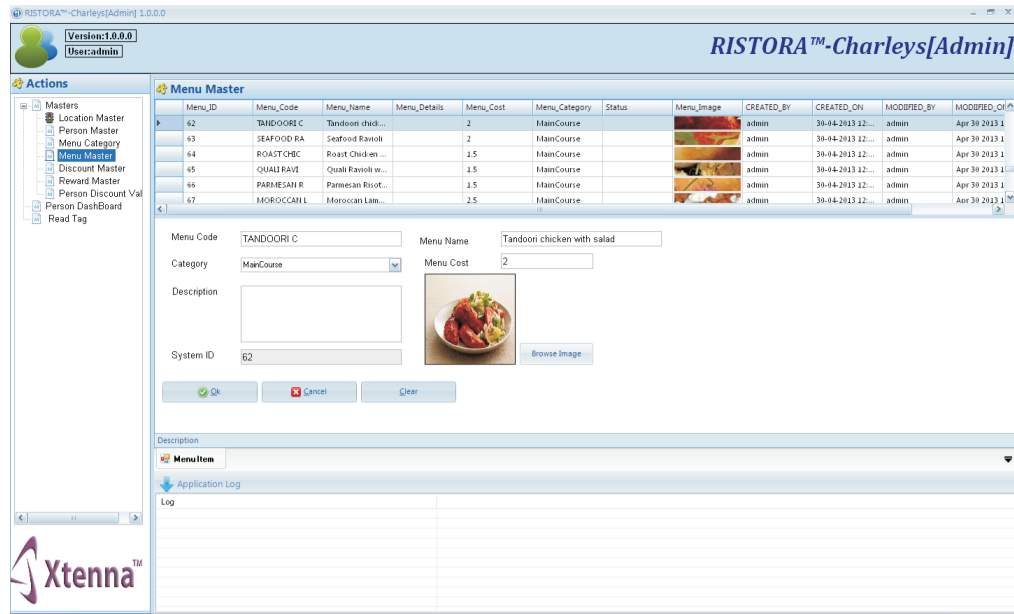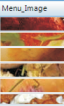
**CASE STUDY**

**Menu Item Master:** Here data is entered for each menu item that will be included in the menu list of the restaurant. A menu category is selected for each menu item and then the item name, menu code, item image, etc. are entered into the system database.



**Discount Master:** Data is entered here for various discount schemes that offered by the restaurant. These include details such as scheme name, value, discount dates, validity, etc.



**Reward Master:** This section will contain data pertaining to loyalty rewards available to eligible customers and contain details such as reward name, eligibility criteria, base value, points earning, etc.

**Mapping Customer Discount:** Here various discount schemes are assigned to registered customers so that the discount gets automatically reflected in the bill amount charged to them.



**Person Dashboard:** In this screen, the administrator reads the customer's loyalty card tag and views information pertaining to that customer's order history, discounts availed and reward points earned.
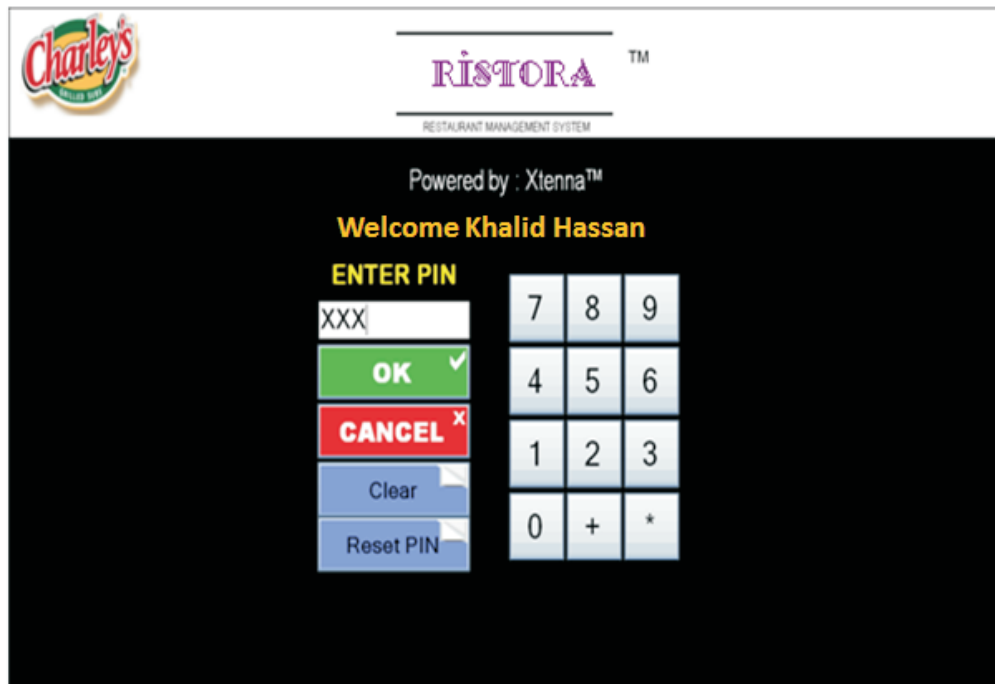
**CASE STUDY**



3.  The customer opens the Menu Ordering System application on the touch screen kiosk or portable device.
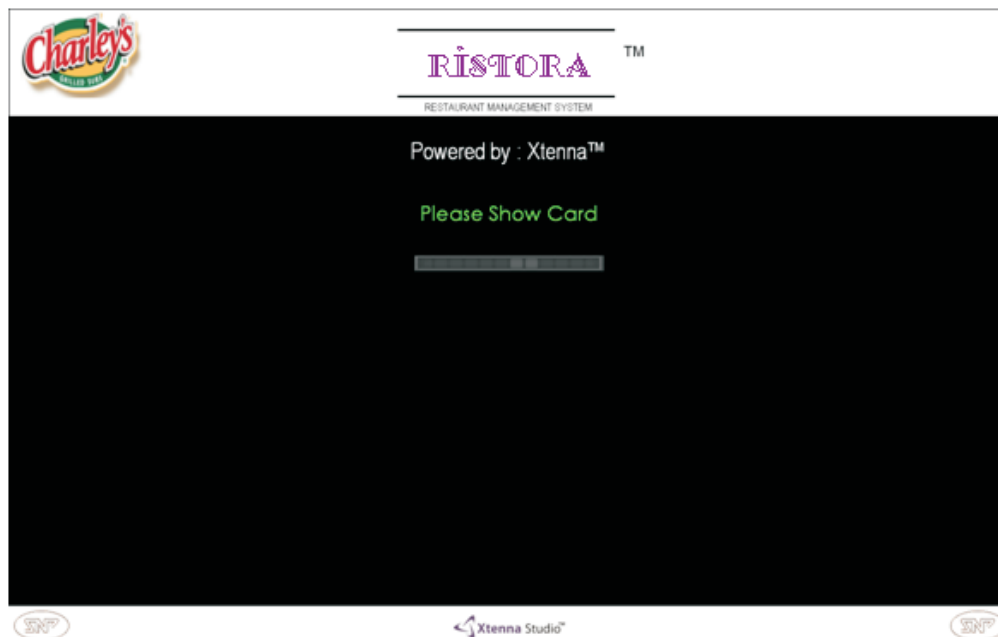


4.  Once the application is open, the customer has to show his card to the device. The device reads the card's ID and a customer login screen is displayed.

5.  The customer needs to enter a valid PIN to log in to the application.

**CASE STUDY**



6. If the entered PIN is valid, the main menu screen will be displayed.
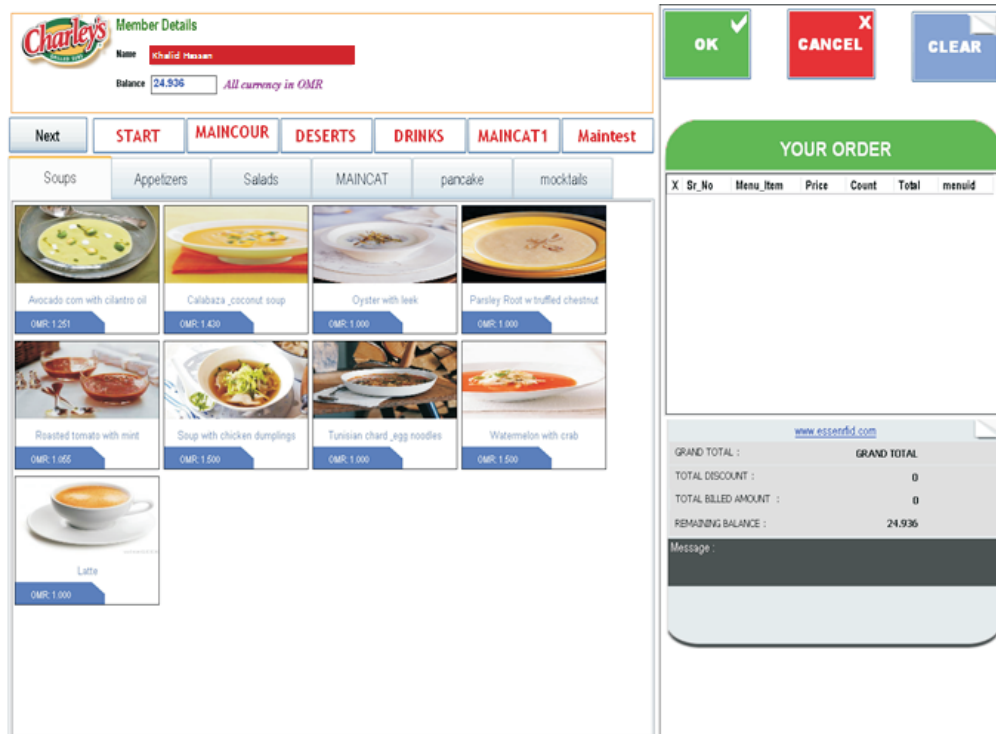


7. The customer then selects items that he prefers and adds them to the order cart displayed on the screen. He can easily view all items by displaying them from within their categories and sub-categories.

**CASE STUDY**

8.  Selected items will get displayed in the order cart to the right of the screen.



9.  The order cart will also display the total value of the order being placed, the discount given to the loyalty card holder and the total billed amount after discount. It also displays the balance amount that will remain with the prepaid loyalty card after the order has been executed.

10. When the required menu items have been selected, the customer confirms the order by tapping the 'OK' button above the order cart. He can also edit or cancel his order by tapping on the 'Clear' or 'Cancel' buttons at any time before order confirmation.

11. Pressing logout will then exit the customer from the application.

**CASE STUDY**

12. The system automatically generates a printed order slip in the kitchen, for the items and quantities in the order placed by the customer along with the order number and customer details.

13. When the order is ready it is delivered to the customer at the table. The prepaid loyalty card customer thus conveniently bypasses the order and payments queue.

14. The menu ordering system automatically creates transaction records for generating reports of orders executed daily as well as over a selected period of time.

15. The administrator can at any time recharge the customer's prepaid account balance from within the application.

He first logs in to the application using the Administrator PIN. He then places the customer's card whose balance requires recharging on the reader device.



**Charley's RISTORA**

Member Name:
Khalid Hassan
Mobile Number:
99341681

| | | Order No. | 50 | 14:07 |
|---|---|---|---|---|
| SrN | Menu ID | | Qty | Total |
| 1 | Grilled Salads | | 1 | 1.7 |
| 2 | Grilled Steak | | 1 | 1.7 |
| 3 | Chicken Buffalo | | 1 | 2.5 |
| 4 | Double Cheese Chicken | | 1 | 2.7 |
| 5 | Chicken Teriyaki | | 1 | 2.5 |
| 6 | Philly Chicken | | 1 | 2.7 |
| 7 | Gourmet Fries | | 1 | 0.6 |
| 8 | Cheddar Cheese | | 1 | 0.8 |
| 9 | Cheddar & Barbecue | | 1 | 0.8 |
| 10 | Cheddar & Ranch | | 1 | 0.8 |
| 11 | Buffalo & Ranch | | 1 | 0.8 |
| | | Grand Total | | 17.6 |
| | | Dicount Total | | 7.92 |
| | | Total Billed Amount | | 9.68 |

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The customer's card details and remaining balance are displayed on the touch screen. The administrator presses the 'Recharge' button which displays a numeric pad on the screen.

**CASE STUDY**

The administrator then taps in the recharge amount and then presses 'Make Recharge' to successfully recharge the customer's prepaid account.



The recharged amount is instantly updated in the daily total summary displayed at the right of the screen, along with individual entries.



The system automatically generates a daily total of revenue earned as well as detailed reports for any selected period of time.

**CASE STUDY**

**BENEFITS:**

- Ease of restaurant operations and stream-lined functioning.
- Quicker and more accurate operations due to RFID based systems.
- Automated identification of regular restaurant patrons due to RFID tag ID based customer loyalty cards, without requiring showing of card to the restaurant personnel.
- Avoids time-consuming queues and congestion at the ordering counter.
- Secure usage at self-operating NFC-enabled kiosk due to entering of PIN authentication by the customer.
- Prepaid cards with auto-deduction provide greater convenience by enabling reduction in frequency of money transactions at the counter.
- Viewing of prepaid balance remaining with the customer on screen before order placement.
- Self-operated kiosks enable unsupervised order placement with lesser line-of-sight requirements.
- Enables image-based menu item selection on screen, enabling greater visual appeal for the menu offerings.
- Enables providing discounts and reward schemes to regular customers, thereby benefitting customers as well as encouraging increased patronage for the restaurant.
- Reduces manpower requirements for taking orders, enabling better focus on order execution and delivery.
- Efficient order management results in quick deliveries for customers.
- Automated generation of order slips directly at the kitchen enables reduction in manual work and paper work.
- Accurate order dispatch ensured due to automated customer identification with facility for customer's name and photograph printed on the order slip.
- Enables better category-based analysis of menu items in terms of popularity, sales and revenue.
- Enables better management of menu items and menu schedules due to computerized database and automated order processing.
- Enables easy and frequent updating of menu items for restaurant customers without incurring printing costs.
- Enables promotion of specific items in the menu due to ease in menu item and category customization.
- Provides easy recharge facility for loyalty card holding customers by the administrator within the same application.
- Enables customization of discount schemes for various categories of loyalty card customers, depending on card usage history.
- Automated history of card usage enables easy allocation of reward points to the customer.
- Automated report generation of total revenue generated over a particular period of time.

**CASE STUDY**

- Detailed item-wise and customer-wise reports and history features for sales and revenue.
- Promotes increased loyalty card membership for customers due to visible convenience and time-saving benefits for card-holders.
- Promotes restaurant popularity and brand value due to innovative features of the system, leading to increased foot-falls and preference over competitors.
- Easy extension of the touch-enabled self-ordering system at the kiosk into apps for the customer's own hand-held devices, enabling remote menu viewing and order placement, thereby taking the business to the next level.

**LINKS:**

**Hardware:**

**Xtenna** Hybrid™

**Tags:**

**PERSONNA**™

**Software:**

**Xtenna** WebToolkit™

**Xtenna** Studio™

**Reference Example:**

http://www.essenrfid.com/Mailer/retail-flash-demo.pdf