

# Wireless Cloud Computing Rewards Automated System for Touch Kiosk, Smart Phones, Tablet Device using 3G/4G, Biometric & Smart Card

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**Abstract.** In this paper, we investigate the highly competitive market; the availability of consumer support is the key to market-based shopping stores. Consumer demands for quality service so the industry must be more active to improve the quality of management to ensure that operator market position. The wireless item ordering automated system using mobile computing devices will speeds up the user and to dramatically increase sales at the stores. Convenient delivery to the user and to track order history easily. This system will ensure what is ordered is what is received. It will move to secure storage immediately. And it minimizes the opportunity to excessive costs. Automating the processes involved in your operation can save you time and money. Rewards Automated System (RAS) is specifically designed and user to allow to operate with effectiveness and speed by utilizing the cutting-edge technology to support on 6-in-1 solution [Beverage, Retail Shopping, Ticketing, Entertainment, Parking, Hotel Check-in]

**Keywords:** smart phones, tablet devices, retail, shopping system, touch kiosk, swipe card, QR barcode, rewards points, biometric finger authentication, cloud, 3G, iPhone, iPad, iPod.

## 1. Introduction

The smart devices with wireless communication and Internet access capabilities could be used for a wide variety of purposes – communications, information seeking, mobile commerce and other business and enterprise applications. There is growing demand from users for accessing Web pages from many different types of mobile devices as well as from desktops. With people increasingly using a variety of devices to access the Web, depending on where they are, what they would like to do and the mode of access at their disposal, enterprises and developers will increasingly be required to provide access to and transactions through the Web in many different new ways. This demand also provides enterprises opportunities to create novel applications to reach and empower their customers.

This proposal will providing a cutting edge technology solutions with Wireless Cloud Computing Rewards Automated System for Touch Kiosk, Smart Phones, Tablet Device using 3G/4G, Biometric & Smart Card.

The Rewards Automated System (RAS) is a web application target for Touch Kiosk, SMART Phones and TABLET handheld devices that allows user to perform the following tasks:

- Item Order & Secure pay using Points/Coupons
- View Promo Points Balances
- Redeem Coupon Offers and Favourite Order/History
- Digital Signage Leader board Display Automation - To view the overall user order status

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- Email/SMS Alert automated notification

## 2. Objectives

The business goals and objectives for this project will focus on implementing mobile technology that:

- Bill payment transactions facilitated in less than two minutes, improving service efficiency and rate of revenue recognition.
- Automating bill acceptance directly increases sales productivity of store associates, and cuts per-transaction fees.
- Electronic input minimizes human error and reconciliation costs, increases throughput, and speeds transaction time for customers.
- Multi-lingual options empower foreign-speaking customers.
- Layered sales and informational applications provide operator with additional ROI from their bill payment platform.
- Security features ensure customer confidentiality in every transaction.
- Anywhere, anytime access.
- Enhances the ability and effectiveness of staff to perform their jobs.
- One web solution will run on different Kiosk/Smart Mobile OS platform.
- Easy Deployment & Maintenance.
- Cost Effective Solution

## 3. Existing Challenges

- Application need to be developed based on each mobile platform/devices technical support
- Approval is needed from apple for every application publish to market
- Deployment of new features is very slow process and not so easy
- Mobile application development, maintenance cost will be high
- Client installation required for each device like desktop, kiosk, smartphones and tablets.
- Performance is low and no data security
- Not easy to use the system
- No usability,
- No multilingual support
- No multisite & system automation
- No cross-platform compatibility
- Training cost involved
- Device orientation based UI
- Support on tablet & smartphones

## 4. Proposed Solution

### 4.1. Project methodology

The Project Methodology forms part of the Business Process Improvement practices that have been developed through many years of experience with successfully deploying solutions across a breadth of industry verticals and environments. The successful delivery of a RAS solution involves the alignment of business strategy, technology tools and processes, and business process change management. We recognize that the methodology should be adapted to fit the requirements of each specific project, since projects may vary in scale and complexity, requiring unique approaches.

### 4.2. System architecture design

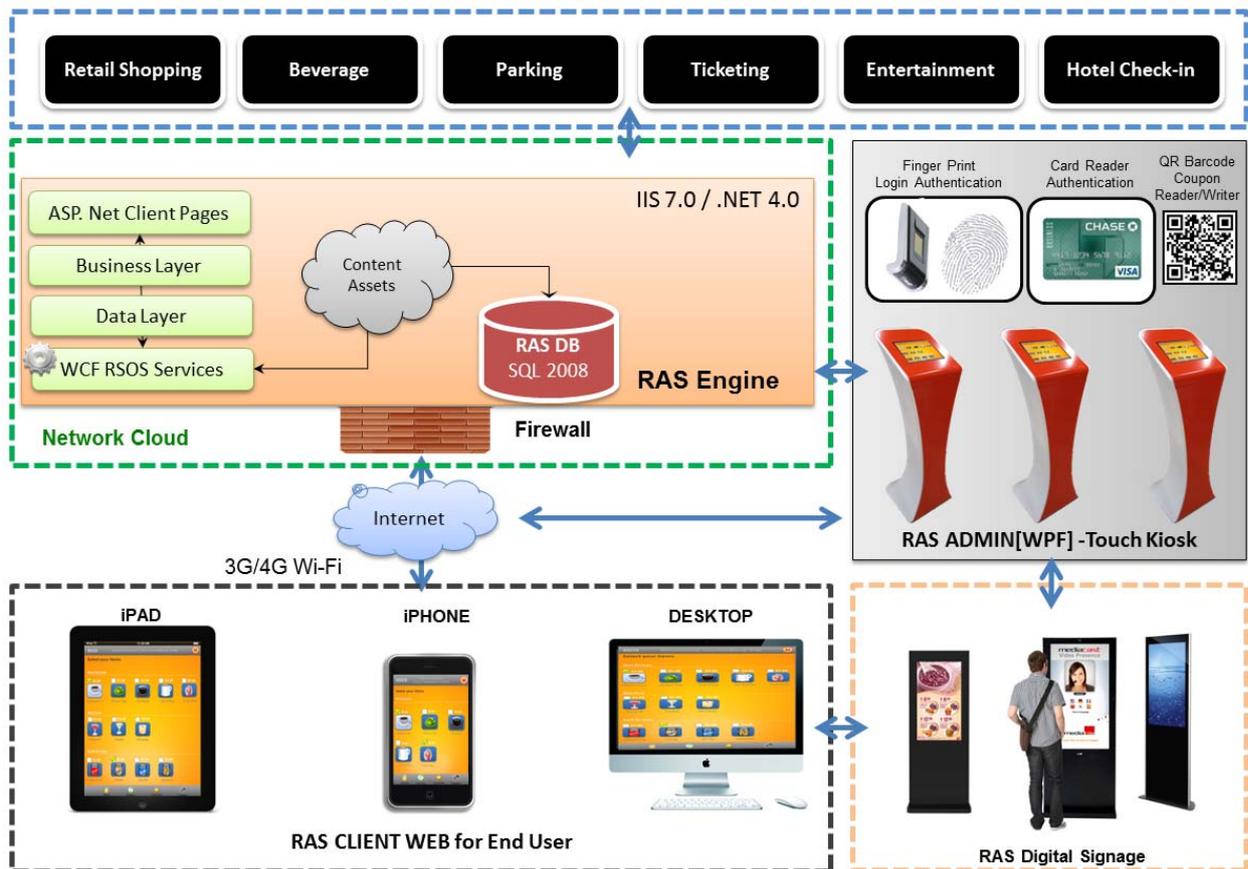


Fig. 1: Rewards Automation System Architecture

RAS framework solution can fit to any business that can help the end-user 24/7 support. RAS is an automated engine can able to handle the below task.

- To help the end user to do the shopping in online very easily
- Anywhere, anytime shopping.
- Continuous track on user order transaction history and can viewed anytime.
- Automated Bonus Point: On the fly Bonus Point updates based on the purchase value and “Just in time” ready to use for shopping
- Automated Coupon Offers: RAS automated Coupon offer solution will provide the offers end user the Based on the User card type [VIP, Gold, Silver, and Platinum] and purchase values criteria.
- Discount/Offer: RAS automated the discount/offers (Specified scheduled period) information to the user to see their eligible Coupon offers and item discount on the fly. This will cut down the operator cost on advertisement/marketing on regular base.
- ADD Favourites: User can able to store their favourite items so that next time the user can go to the favourite section and order the items. This will help the user to quickly do the shopping in online.
- Usability [Ease of Use]
- Engage with any Rewards Automation System.
- Multisite Support [Different Branches Location] & Multilingual Support
- No client installation required.
- Centralized Data Access. Data is stored remotely. QR Barcode for Data security
- Automated Digital Signage Display
- Support on Tablet & Smartphones cross-platform compatibility

- Cloud computing for avoiding network traffic and increase request/ response speed time.

### 4.3. 6-in-1 solution for end user

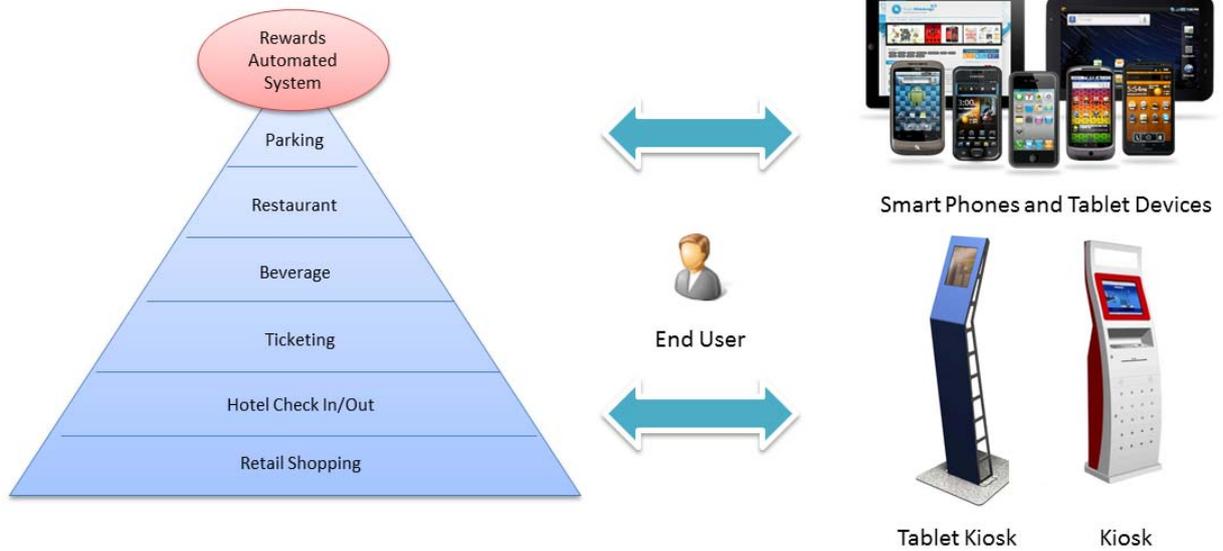


Fig. 2: Rewards Automation System Architecture.

## 5. Features

### 5.1. User/Operator RAS system authentication security model

Three ways security layer authentication (Biometric [Finger Print/Facial Recognition], Smart Card Reader, Login User Credential) involved in RAS Admin module.

### 5.2. Cloud computing with RAS engine

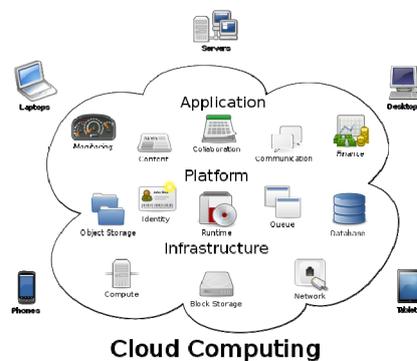


Fig. 3: CLOUD Computing- Rewards Automation System

For fast performance even through high network traffic and quick response and transaction results are using Cloud with Microsoft Azure. The Windows Azure platform is a flexible cloud-computing platform.

Windows Azure offers simple, comprehensive, and powerful platform for the creation of web applications and services. Windows Azure enables Start-ups to focus on their business logic, as opposed to operational hurdles, in creating compelling products.

### 5.3. QR bar code with rewards coupon security

QR code (abbreviated from Quick Response code) is a type of matrix barcode used in stores everywhere with a two dimensional (2D) capability that holds thousands of characters. Bar codes can only hold up to 20 characters limiting their effectiveness while the 2D QR Codes can store complex data and perform a Coupon Redeem operation and will generate the coupon at runtime based on the coupon available for each user.

## 5.4. Digital signage for ras signage content

Digital Signage refers to an electronically controlled sign that you can update on-the-fly. Digital signage content can be displayed at every shop front to update the status to end users. RAS service will trigger the order status based on the time interval in to Digital Signage and the Order Status will be display in Wall Mounted Plasma (Recommendation: 42 inches with 1920\* 1080 resolution).

## 5.5. Self service kiosk

Digital Signage refers to an electronically controlled sign that you can update on-the-fly. Digital signage content can be displayed at every shop front to update the status to end users. RAS service will trigger the order status based on the time interval in to Digital Signage and the Order Status will be display in Wall Mounted Plasma (Recommendation: 42 inches with 1920\* 1080 resolution).

## 6. Market Survey

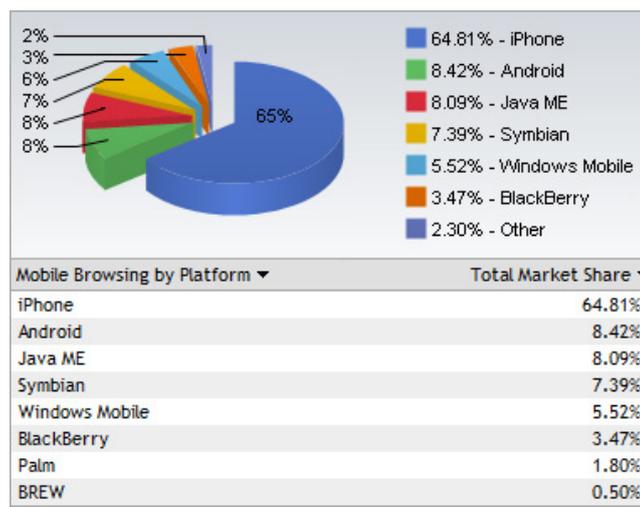


Fig. 4: Mobile Browsing by Platform

## 7. Conclusion

In this paper, the proposed solution Rewards Automated System (RAS) is specifically designed and user to allow to operate with effectiveness and speed by utilizing the cutting-edge technology to support on 6-in-1 solution [Beverage, Retail Shopping, Ticketing, Entertainment, Parking, Hotel Check-in] target for Touch Kiosk, Smart phones and Tablet device and solve the expected business goals and objectives implementing mobile technology that will:

- Improve Customer Satisfaction
- Improve Financial Results
- Improve Employee Productivity & Saving Time
- Reduce Order Errors & Delays

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