SHOP & GO

Sonal Singh\textsuperscript{1}, Rahul Pakhare\textsuperscript{2}, Manoj Yadav\textsuperscript{3}, Pooja Singh\textsuperscript{4}, Prof. Manish P. Gangwane\textsuperscript{5}
\textsuperscript{1,2,3,4}BE (Computer),\textsuperscript{5} Prof., Department of CSE, Mumbai, India

Abstract—‘Shop & Go’, as the name suggests, is an upgrade in the shopping experience for the customers as well as a better business tool for the market. The traditional way of shopping where the customer needed to pick up products it wanted, stack them in the cart, stand in a long queue for an hour and then pop out each item one by one at the checkout counter and get the products billed. This project makes the process a lot simpler. The customer enters the store, gets out his own smartphone from the pocket, visits a link, picks up the desired product, scans its barcode and repeats for all the desired products. The complete bill for all the products is generated on the mobile itself. Now, it’s upon you how you would like to pay - debit card, credit card, e-wallets or cash.

Keywords—checkout, mobile, retail, shopngo, shopping

I. Introduction

New instances of self-service have cropped up everywhere from banks, to retail stores, airports, hospitals, gas stations, hotels, restaurants, government entities, and entertainment venues. Self-service has become a ubiquitous part of our world and has helped create a new era of efficiency, convenience, and productivity benefiting both deployers of self-service and consumers. Supermarkets are the new trend in this era. Revolutions in retail industry has hit a trend of self-checkouts in supermarkets.

II. Purpose

In retail, self-checkout is used extensively in supermarkets, mass merchants/hypermarkets, convenience stores and home improvement stores and has strong consumer acceptance. Since its inception, shoppers has gravitated towards self-checkout when they are purchasing a smaller basket, typically less than 15 items. Globally, consumers said they rely on self-checkout when they:

- have just a few items
- when the cashier lines are too long
- when they are in a hurry

III. Review Of Literature

As all of you know, waiting in lines at stores during checkout can be quite a pain [16]. While it will be years before mobile shopping becomes the dominant way that consumers complete in-store retail transactions, there is no doubt that 2011 has marked a breakthrough year when it comes to mobile shopping technologies [15]. A 2014 NCR global study, conducted by the NPD Group, revealed that of the 2,803 consumers surveyed in Australia, France, Germany, Italy, Japan, Russia, Spain, UK, and the US, 90% identify themselves as users of self-checkout. Of these, seven percent of global consumers always use self-checkout regardless of how many items they are buying or how long the need to wait to use it.

Italy and Australia had the highest percentage of consumers who, “always use self-checkout” with 13% and 9% respectively [9]. Common reasons for choosing self-checkout included “I have a limited number of items” (72 percent), “there was no line” (55 percent), and “I prefer to keep my transactions and financial information private” (13 percent) [13].
A study undertaken in September 2016 by First Data the global payment technology solutions giant polled 2000 UK shoppers and uncovered that Britons find retail queues more irritating than any other queue for services or goods with only 8% of respondents saying they'd wait the longest in a retail store queue [14].

A. Convenience Distribution
   - 54% Italy
   - 52% Australia
   - 51% Germany
   - 50% US

B. Simplicity Distribution
   - 50% Italy
   - 47% Australia
   - 44% Spain

C. Speed Distribution
   - 46% Russia
   - 46% Japan
   - 45% Italy
   - 45% France [11]

IV. Business Impact

A. Reduced Costs
   Reduce the number of traditional checkout stations required, reducing operational costs.

B. More Retail Space
   Reserve valuable front-of-store real estate for product showcases.

C. Faster Checkout
   Cruise through an express checkout with a retail employee or payment kiosk.

V. Description

Checkout lines may soon be a thing of the past. In this project, a plan has been revealed to do away with long lines by allowing customers to scan each item with their cellphones as they shop. When finished, a customer simply has to pay via online transactions like netbanking, credit/debit cards, electronic wallets etc.

Figure II [10]

According to a survey conducted by New Vision Inc., in cooperation with St. Petersburg State University, nothing annoys customers more than queues in supermarkets [10].

A. Connection Setup

The customer enters the store and connects with the wireless lan hosted by the supermarket. The router detects the MAC address of the device and thus detects the registered user from the device. If the user is not registered, i.e., a new user is found, a sign up form is displayed on the user’s device. Otherwise the homepage is displayed.
B. Scanning

Whenever a customer wishes to buy a new product he will pick the product, select the scan option on the home page of the website, resulting in pop up of mobile barcode scanner through the device camera, scans the barcode present on the packaging of the product. The barcode scanner retrieves the product id from the barcode and puts the product in his shopping bag. Now a database retrieval operation is initiated, the product id being the search parameter. All the details belonging to the retrieved product id is displayed on the device that requested for database access. As customers shop and scan each item, the information is logged in the mobile device. Also, they will be receiving customized (and hopefully relevant) offers related to items they scan while shopping in real-time [14].

Customers scan store items with their smartphone or tablet to add them to their cart.

By scanning, customers can access in-store products, inventory levels and product reviews.

C. Payment

The concept works with a mobile wallet, in which customers preload their card information to setup the payment method. The customers play directly through the mobile wallet. [6]

VI. Security

“Self-checkout” is an automated process that enables shoppers to scan, bag, and pay for their purchases without human assistance. Instructions are given to guide shoppers to complete the checkout process. Typically, the customer scan each item or manually enter its identification code and bag it. After scanning and bagging, customer may choose method of payment: debit card, credit card, or cash.
Using this system to self checkout could deactivate security by informing systems linked to RFID tags so that the customer can leave without any fears of being chased by store security staff. [2]

VII. Future

New interesting implementation of checkout solutions is a contactless payment using RFID system. Each items in the store will be labeled with RFID tags, and there will be RFID readers to detect the items that each shopper has in his/her cart. When shopping is done, he/she will not need to scan their items, but they can just walk out the store’s door, adding convenience and efficiency.

VIII. Conclusion

While the self-scanning technology may seem like it would take more time than waiting in the normal checkout lane, the app, at least for now, helps get more shoppers out the door more quickly than if all shoppers stood in line. If a shopper is only getting a few items, and he doesn’t have to wait behind a shopper (or many shoppers) with a large cart, using ShopNGo is faster.

REFERENCES


11] SELF-CHECKOUT: A GLOBAL CONSUMER PERSPECTIVE, NCR Corporation, USA.


