Intelligent Assistance for Smart Shopping

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ABSTRACT

Over the past few years there has been vast development in Android Application technology. This development made people's lifestyle much easier and interesting through various innovations by finding solutions to day-to-day problems. Even though many things became easier, still shopping is tough. For customers finding the required product in the supermarket is the most challenging task and moreover it is exhausting to stand in long queues at the billing counters. Shopping is a day-to-day activity. Many people visit supermarket for shopping on regular basis and during weekends, holidays and festive season supermarkets witness huge crowds. The development of online shopping websites has attracted people to purchase products online without visiting any supermarket. Mostly all the products are available on websites like Amazon, Flipkart, etc. But people cannot verify the quality of the product physically and can only verify after the product's delivery. If the product is not up to the customer's expectations, then it becomes a hefty task of returning and reordering the product.

Keywords-- Android Studio, MySQL, Java

I. INTRODUCTION

India is one of the largest business hubs in the world. The supply and need of the market in the country has drastically increased over the past few years and it is very important to provide customers with the best experience. Considering the population and the demand of the customer it is the most challenging task of providing services in the market. Most of the activities which used to consume time and money of customers have been made easier. Most of the things are now digitalized and are easy to understand, access and use. This credits industries for trying their best to provide good consumer services with the help of developing technology. Even after such vast development few problems are still troubling the customers. When it comes to shopping it has been a tedious task for customers to find the required products in the supermarket. Even after getting all the products customers had to wait in long queues to get the billing of the purchased products done. This is a tiring and time-wasting process. Different kinds of solutions have been implemented but failed to make an impact.

The evolution of mobile phones over the years is simply exceptional. Mobile phones have now become part and parcel of human life. Many day-to-day activities are carried out on it. This device now has many things on it other than just calling and messaging. They now have entertainment platforms, shopping applications, payment gateways, and many more. This allows people to multitask. Android Application which makes shopping easier can be developed and added to this device will become a big boom in the market. This will overcome the above-mentioned concerns related to shopping. This allows customers to find the products in the supermarket easily and not have to wait in the long queues. The payment option will be provided for bill payment. Even though online platforms are available, it is difficult to determine the quality. This approach of Android Application with chatbot assistance will enhance customer service. It will help customers to shop easily without wasting time and energy.

II. MOTIVATION

Necessity is the mother of invention. This led to vast developments in the field of technology. Many innovative ideas and inventions have resulted in the advancement of human lifestyle. Things now look much easier than before, and this process is going on. When it comes to shopping there has been development but still there are many complications. Shopping at the supermarket is stressful, it is very difficult to find the product and standing in the queue for billing is very tiring. And in online shopping the quality of the product cannot be verified before the delivery. This motivated us to work on an innovative smart application which helps customer to find the products easily and don't need to stand in long queues.

III. LITERATURE SURVEY

Proposes [1] the Virtual Cart smartphone application for making shopping center purchases simple and convenient. Nowadays, many humans are getting increasingly occupied because of their lifestyles and needs, necessitating the creation of new jobs. The goal of an hour is to do all personal tasks quickly and efficiently with the least amount of effort and time. Mall shopping is a common pastime. On Saturdays, malls might be extremely crowded.

Holidays, weekends, and special offers and discounts are the best times to shop. Shopping in a mall, on the other hand, is a lot more expensive. People prefer online shopping to purchase the products they need through Amazon, Flipkart, and other similar sites. They won't be able to see or feel the products until they receive the delivery. So, to address this issue, we introduced Virtual Cart, which allows users to avoid the complexities of online and offline buying by assuring a better shopping experience.

A smart Shopping Cart based on the Internet of Things (IoT) was presented, which includes RFID sensors, an Arduino microcontroller, a Bluetooth module, and a mobile application. Wireless connection is required for RFID sensors. Once the RFID tag is connected to each product, and the RFID reader scans the tag effectively provides product information. Following that, each product's information appears in the mobile application. In the Mobile application, the customer can effortlessly manage his or her shopping list according to personal preferences. The information is then wireless and automatically generates invoices. This experimental prototype aims to minimize the time- consuming shopping process as well as concerns with service quality. In the future, the proposed technology can be simply implemented and tested on a commercial scale in a real-world setting. As a result, the proposed model is more competitive than alternatives [2].

The details of the product selected by the buyer be sent directly to the supermarket's system. Shopping has been an important part of our economic activity. It's worth looking into how to give smart shopping by interacting with clients in supermarkets quickly. This study offers a sensor-based smart shopping cart (3S-cart) system that uses sensors' context-aware capabilities to monitor and respond to customer behaviour in real time. A 3S-cart prototype is built by encasing modularized sensors in a box that can be attached to shopping carts. As a result, 3S- cart is compact and simple to use. 3S-cart also shows off two supermarket apps. Each cart in the sales-promotion application examines if its customer is interested in certain products and displays sales information at the same time to promote purchasing desire. In the product-navigation application, a consumer requests that the system discover the quickest, most direct route to the specified product. This study contributes to the use of sensor technologies in supermarkets to allow interactive shopping, as well as the prototype experience and future applications of the suggested 3S-cart system [3].

Author propose the solution includes an Android application that can be used in smart shopping carts to tackle these problems and improve the shopping experience. Our smart app is divided into two sections, with the first focusing on navigation to the item's location and the second on automatic billing products that have been purchased by the user. The app's development environment is open source. Android Studio is a piece of software. The products are scanned using an RFID reader. The concept and execution of the app, as well as the findings collected, are discussed [4].

From the above referred papers, it has been understood that the above-mentioned approaches have not provided the complete model which can make shopping easy. Some have not provided chatbot assistance which guides customers to products, and in some have not provided online payment options, so people can't avoid queues. Android Application is not developed in approach, which allows customers to add products to cart, scan the products and make payments online. So by considering all this aspects an Android Application with chatbot assistance is been developed for shopping which will make shopping easier and will save time of the customers.

IV. PROPOSED APPROACH

The main function of the proposed system is to develop a mobile application using chatbot assistance to make shopping easy. As shown in Fig.1 The concept behind mobile application is to find desired products in supermarkets using chatbot assistance and scan the purchased products and simultaneously pay the bill of the products.
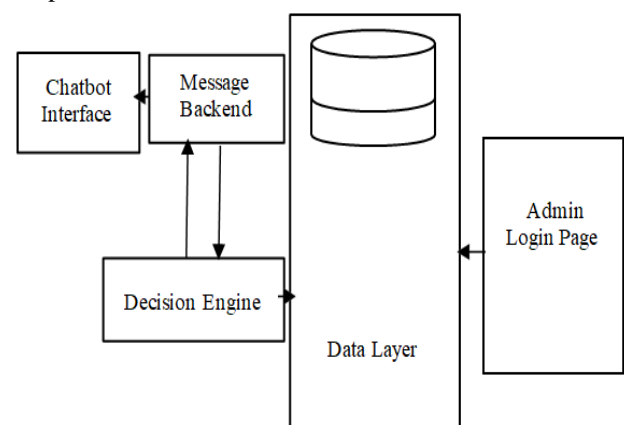

Figure 1: Chatbot System Mode

Admin Login Page
The admin login page is login page for consumer where consumer can login into their account and use the model secure. This is the first page of our application.

Data Layer

Data layer is developed using MySQL, the data layer gives a structure to the datasets that the chatbot will use to answer product-related questions. All the information is stored into database.

Message Backend

The message backend is consist in backend of our model where all the dataset is imported in model. We used this section to trained our model. It will be developed using IBM Watson and MySQL database.

Chatbot Interface

The chatbot interface is developed using IBM Watson which will helpful for the user to know the current prices of the products sold in the supermarket and current location of the products kept in the supermarket.

V. IMPLEMENTATION

This application consist of various activities for user aiding location of items, product scanning, offer and discount in the supermarket and payment gateway. This all activities are there in the model as shown in Fig 2.
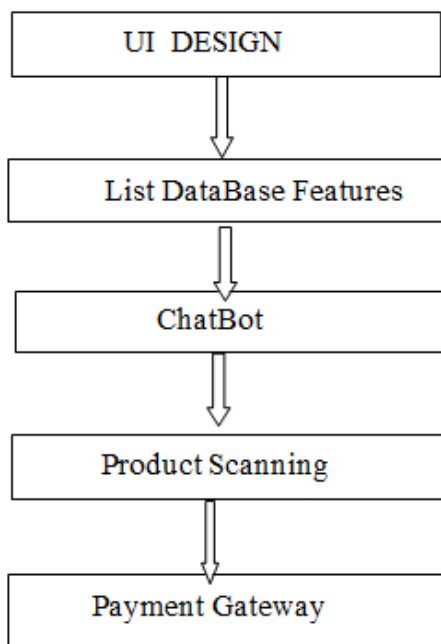

Figure 2: Flow Chart of Intelligent Assistant

User Interface (UI) Design

Implementation of UI Design is done using Android Studio Application. Android Studio will help you develop your app in a more productive way at scale, Code with confidence and Optimize code workflow. Eliminate tiresome tasks. Create connected apps Build rich experiences.

Creating Products List

User can create product list in our application to purchase the product in the supermarket. This product list feature is managed by using MySQL database. MySQL is the most widely used open source relational database and serves as the primary relational data store for many popular websites, applications, and commercial products.

Chatbot

Chatbot is used to find exact location of the product in the supermarket. Chatbot is made using IBM Watson services. In which we trained chatbot according to consumer requirement. Watson Studio allows used to train the AI models, and prepare and analyze information during a single integrated environment.

Product Scanning

Product scanning features is used to scan the product and that product will be added to their applications cart. Every product has unique barcode which will specify its details.

Payment Gateway

Once the products is added to the cart consumer can pay their bill through online mode. Payment gateway are managed by various paid services like CCAvenue which makes them more secure.

VI. RESULT

The desired is to give fully automated shopping experience to the customers through the application. The customer should have the application on their device. Login in to the application the customer will get various options like cart, scanner, chat, profile, etc. The customer has to select the required items and add them to cart. This will help them to know whether the item is available or not. Next step is to visit the supermarket and with the help of chatbot assistance, they will be guided to the section where the selected items are kept. The customer has to scan the product and add it to the trolley. This way all the items will get billed. After picking up all the required items, customer has to go to the counter where the items will be counted to avoid any kind of theft and final bill will be generated. The customer can pay it through the application itself or can use the counter. In this way, the time will be saved and is easy to use.
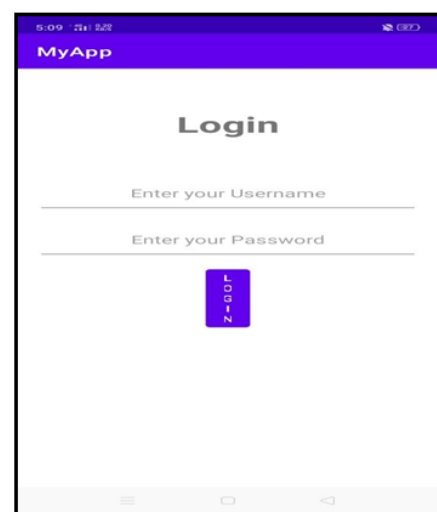

Figure 3: Log In Page for Application
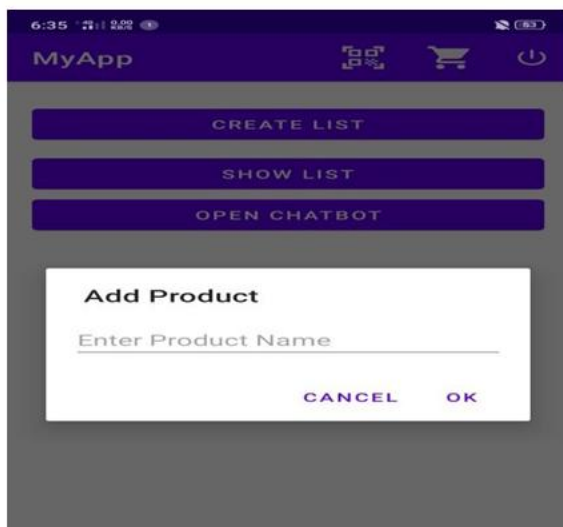
Figure 4: Features in Application

Figure 5: Adding Item to the Car

VII. CONCLUSION

Supermarkets are getting digitalized for providing better shopping experience. Few supermarket like d-mart, big bazaar have provided online platform for shopping. This helps customer to save time and avoid heavy crowds in the supermarket. But the quality of the staples cannot be determined before the delivery. If it's not up to the mark then it's an add-on task of returning and reordering. By considering both the aspects of time and quality, an Android Application is designed with chatbot assistance to make shopping easier and happier. This application allows customer to make a list of items of purchase, find the product in the market with chatbot assistance, and provides online payment gateway to avoid long queues at billing counters.

FUTURE SCOPE

This application is mostly automated, just in the final part a person is needed to count the items purchased to avoid theft. This can be replaced by using RFID technology by giving each item it's unique identity. Now it's tough to implement considering the cost of the RFID technology. But when this technology gets launched on a large scale it can be achieved. And by roping in multiple supermarkets it would be very easy for customer to choose the items, compare the prices, and know the offers available in the supermarkets. This will help the customers to save money and time as well.

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