

# Design and Development of Digital Grocery Commerce Application with Trends and Influence of Situational Factors

**Penchalaiah P**

*Professor, Department of CSE, Narayana Engineering College, Gudur, JNTUA, AP, India*

**BalaJyosthna.P**

*B.Tech, Department of CSE, Narayana Engineering College, Gudur, JNTUA, AP, India*

**Devi Priya.P**

*B.Tech, Department of CSE, Narayana Engineering College, Gudur, JNTUA, AP, India*

**Abida.SK**

*B.Tech, Department of CSE, Narayana Engineering College, Gudur, JNTUA, AP, India*

## ABSTRACT

The main object of this paper is to bestow an android application that makes end-user purchase Grocery items via the internet by considering trends and influences. Digital Grocery Commerce applications will act as tools for acquiring products and services online. E-Commerce is a system that runs under the Android platform which is used for promoting and marketing your goods with a single application.

**Keywords:** Android, e-commerce, Grocery, Trends, Digital Grocery

## 1. INTRODUCTION

Android is an open-source mobile operating system based on a revamped version of Linux kernel. Originally it was produced by android Inc, next purchased and released by Google. This is the most adapted operating system for mobile phones. In this developers can develop their applications utilizing various tools and deploy them in play stores [1]. The internet has transformed into numerous aspects. It shaped the way we interact, market, shopping, etc. E-commerce is a unique and most reliable way of purchasing goods [2]. Several companies are adopting such technology to promote and market their goods in handheld appliances such as mobile phones. Mobile devices with full access to the Internet have allotted companies to reach customers in more diverse ways, thus ensuring deep market penetration. In our application, we are using Firebase which is a backend platform for building Web, Android, and IOS applications. It supports real-time databases, different APIs, multiple authentication types, and hosting platforms [3]. It provides classes such as Firebase Authentication and Firebase Real-time Database.

Firestore Authentication: Many applications need to know the identity of a user. Developing and maintaining sign-in set-up may be a bit difficult and time taking. Firestore provides an easy API for sign in[ 4].

Real-time database: It is a cloud-hosted NoSQL database. Apart from these firebases also provides a service for crash reporting[6]

Digital Grocery is an android application where user can buy grocery products online. Grocery Products are displayed in an effective graphical user interface. This system will be like a virtual supermarket. Users can select the product he wants to buy and the selected product will be added to cart. Cart contains a product he had selected and the amount. It is also possible to remove the entire item from the cart. Users can search for the product through categories like Fruits, Vegetables, and Detergents, etc. After selecting products the user can make payment through cash on delivery. The grocery will be delivered to his specified address. Users can

modify or update the delivery address as per his/her requirement. Users can also choose the delivery date and time from available options. The available dates will be the next two days from the current date.

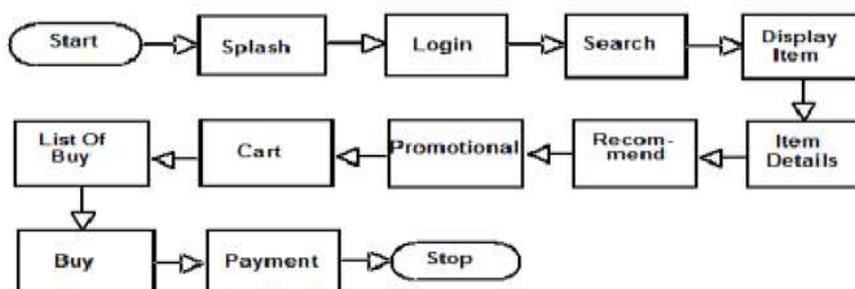
Since this system is made in android it is easily available in smartphones. Customers with Android supported mobile phones can easily use the application and can buy their groceries. There is no need for waiting in the long queue. Users don't need to carry heavy bags and struggling with trolleys. Customers can purchase products sitting at home by viewing images of different grocery products and adding in the shopping cart.

### 2. LITERATURE SURVEY

Online shopping is becoming increasingly popular. Online retail sales are predicted to rise from \$172 billion in 2005 to \$329 billion in 2010 [Johnson 2005]. In worldwide there are 32 countries with the Internet penetration rate higher than 50. As of April 2006, 73% of American adults are Internet users Furthermore; Internet users' ability to shop online has significantly increased from 16% to 32% since March 2001[7]. In 2017 worldwide retail e-commerce sales expanded up to 2304 billion US dollars and this is estimated to continue to grow to 4878 billion US dollars in 2021 (Statista, 2018)[5]. The possible advantages of online purchasing for customers involve convenience, various selection, low price, original services, personal attention, and easy access to information, among others. As far as online retail goes, grocery is one of the less developed sectors, with 5.5% of all spending being made online in 2017 (Global Data, 2017). According to Statista (2018), in 2017 there were 1,66 billion digital buyers worldwide and this is estimated to grow to 2,14 billion digital buyers worldwide in 2021. Thanks to the increasing number of digital buyers and increased consumer demand, the sector will spur to higher growth (Global Data, 2017; Nielsen, April 2015). According to global Data (2017), almost 10% of all grocery sales will likely be made online at the end of 2021[5]. Without focusing on product categories, they do indicate that online shopping behavior may vary for specific product categories and across various countries. To examine how product category characteristics drive product category e-commerce market shares, relevant theories will be examined. Secondly, this study tests the impact of the product category characteristics on e-commerce market shares by combining multiple datasets. The results enlighten marketing managers about the influence of product characteristics and provide insights on how to cope with those in the online grocery sector.

### 3. PROPOSED METHOD AND IMLEMENTTION

This is an Android application that is very easy to use by the users. It has flexibility so that we can add features lately based on the trend. Using this application we can get the goods within 2 days. Since it is for the local store it is cheaper compare to others. The transportation charges will be less. Its revenue model is to collect the commission from grocery stores for every order they get it for them. It's simple because the customer can order grocery items of their choice sitting at home/workplace and grocery stores are also getting more and more orders creating online impact. The following flow-chart gives abstract of proposed system.



In this Android Application, we have two agents as follows.

- Agent
- Client

*Agent* - market the available grocery items.  
*Client* - purchase the necessary items

This application is developed in an android studio and the following are screenshots that are received as a result of it. Initially, we have a Login page (Figure 1) where users can log in with their credentials like Gmail and Password.

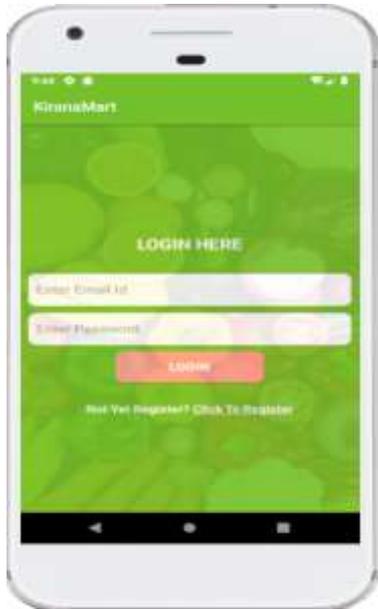


Figure 1: Login page

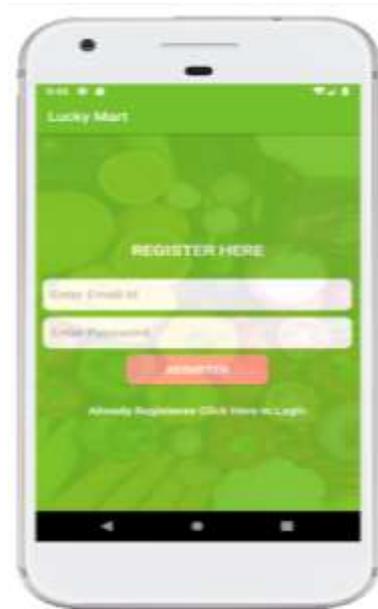


Figure 2: Registration

If the Agent doesn't have a record, he/she can register by clicking the "Click to register" (figure 2) button then it will go to the registration Activity, where we can create an account with G-mail and password.

After the user has successfully logged into the account, a home page (Figure 3) will be presented which is presented here.



Figure 3: Homepage

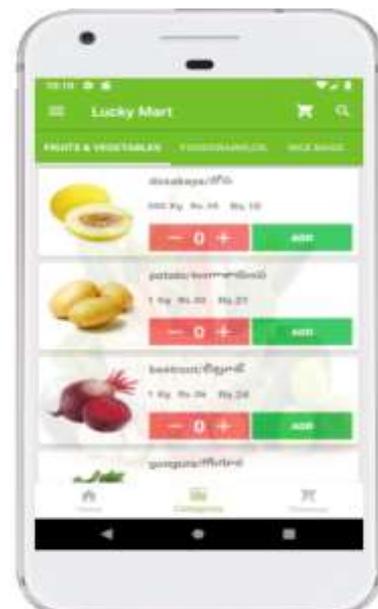


Figure 4: Purchase Page

In this, we have all the possible kinds of grocery items like fruits and vegetables, Rice bags, Perfumes, Sweets and bakery, books, etc. The Agent can visit any of it and purchase the required products.

For instance, if the user desires to purchase fruits and vegetables, then the screen will be as follows.

We can prefer the Quantity by clicking either "+" or "-". Once electing the required items, we can proceed to the cart by clicking the "Add button" which results in the following screen.

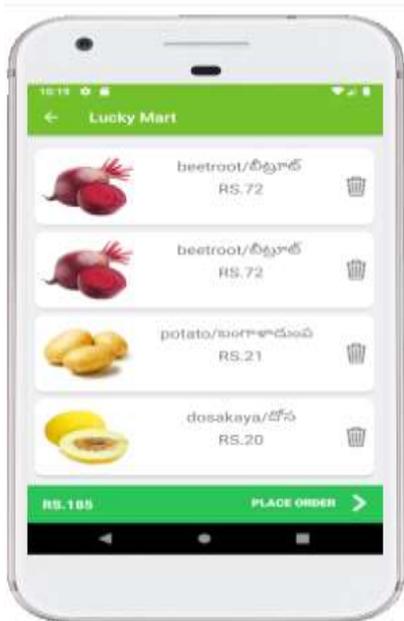


Figure 5: Adding to Cart

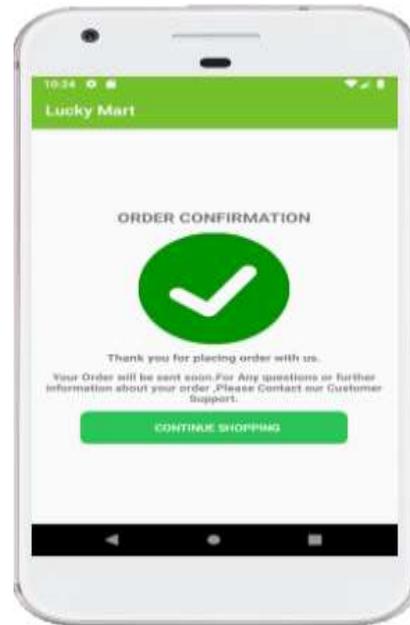


Figure 6: Placing order

If we want to eliminate some Goods we can do it by clicking the icon. Lastly by clicking "Place Order" it will navigate to the Address page where we can choose the delivery address, date, and time.

We have a navigation menu like the following where we can do the following activities.

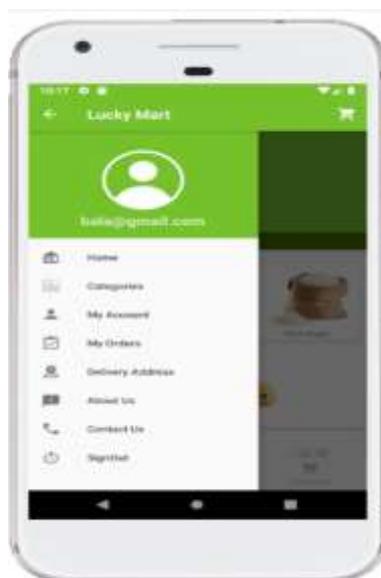


Figure 7: Menu

- Categories: Samples of Grocery Items
- My Account: Customer Profile
- My orders: Customer up-to-date purchases
- Delivery Address: Customer shipment address
- About us: about this application
- Contact us: seller Profile with Address, Mobile Number, Mail id, etc.

#### 4. CONCLUSION

It can be concluded that grocery consumers buy online because of its convenience and time-saving. The advertising intensity of a product category positively affects e-commerce market share, since the positive effect is significant. Households are motivated to use an e-commerce grocery service because of its convenience such as the elimination of the burden of physically handling these products. To summarize, this research first points to classify major product category characteristics and their impact on e-commerce market shares in the grocery retail sector to get a better opinion and more refined representations of those product category characteristics.

#### REFERENCES

- [1]. Android Based Instant Messaging Application Using Firebase by SaiSpandhana Reddy Emmadi, SirishaPotluri
- [2]. E-Commerce Smartphone Application by Abdullah SalehAlqahtani and Robert Goodwin
- [3]. Firebase tutorials point <https://www.tutorialspoint.com/firebase/index.htm>
- [4]. Javed Ahmad Shaheen et al, Android OS with its Architecture and Android Application with Dalvik Virtual Machine Review, International Journal of Multimedia and Ubiquitous Engineering Vol. 12, No. 7 (2017), pp. 19-30
- [5]. PlanetRetail. (Nov 2016). Global E-commerce Trends, 2016: Online grocery transforms the future.
- [6]. Sajid Nabi Khan, Ikhlq Ul Firdous, Review on Android App Security, International Journal of Advanced Research in Computer Science and Software Engineering, Volume 7, Issue 4, April 2017
- [7]. Zhou, L., Dai, L., & Zhang, D. (2007). Online shopping acceptance model-A critical survey of consumer factors in online shopping. Journal of Electronic commerce research, 8(1), 41.