

Development of E-Commerce Based Application for Covid-19 Pandemic

ABSTRACT

A grocery shop is a retailing shop where a general range freshly packed food products are available. On a everyday life people have to use a grocery shop to get their livelihood items. To buy the necessary products people visit a grocery shop , collect the products from different shelves then pay for the item and proceed. But many times this process does not seem very convenient . People nowadays are very busy. In their busy schedule they always forget to make time for grocery shopping. Some people try to avoid it because of traffic jam, just to avoid gathering of people. Moreover, in this global pandemic it can turned into a life thread for a person or family as well as a nation. Considering all the issues and reasons behind the issues we think online grocery store can be the best solution of all the problems. This paper represents the development of web based online grocery store where people can do shopping using a computer or a smart phone sitting at their home very easily. Though online shopping has been known as a rapidly growing business, and although online grocery shopping has not followed these same growth patterns in the past, it is now being recognized for its potential. There will be a admin panel and a user panel. Users have to use a Gmail to log in and create an account to do shopping. Admins always use their Gmail to maintain the product availability, the website, the customers and more. This system can make people life very easy and time saving.

INTRODUCTION

The novel coronavirus disease (COVID-19) has impacted the daily life of many people. In an attempt to limit the spread of COVID-19, individuals have changed how and how much they produce and consume. According to data on household consumption in the world, expenses grocery delivery and other categories changed substantially from week to week during the early stage of the COVID-19 pandemic . Next to the health care industry, the food industry is arguably the most affected by the pandemic . In the Bangladesh most eating establishments have been mandated by the government to close temporarily. However, even during the pandemic, groceries are still basic human necessities. In fact, consumer expenditure on groceries is on the rise in every type of grocery store . By far the largest increase in consumer expenditure on groceries has been experienced by online retailers. . While grocery deliverers have also reported an increase in demand , supply and demand imbalances pose challenges to the sector . Grocery shopping attributes (purchasing methods, time windows, minimum order requirements, and fees) under various scenarios of the COVID-19 pandemic. Are there significant differences in consumer preferences for grocery shopping attributes when the number of new COVID-19 cases is increasing, constant, or decreasing? The trend in the number of new COVID-19 cases may affect consumer behavior, as there is risk of contamination in case of physical proximity with other people. Consumers may use information on the number of new COVID-19 cases to help make decisions.[1] Our study relates to the literature on online grocery shopping. More recent studies have explored the role of online grocery shopping attributes on purchasing behavior, including delivery costs , delivery times , and minimum order thresholds . However, no empirical study has considered the four grocery shopping attributes at the same time.

This study will focus more specifically on grocery shopping. The retail grocery industry has during the immediate phases of Covid-19 witnessed changes in collective patterns of consumer behavior, even a

radical change in demand for certain products, online shopping and home delivery services. To a degree these changes result from restrictions and recommendations from national governments and different local and global authorities to protect especially persons belonging to a Covid-19 risk group, but also from drivers in the minds of the consumers to protect themselves, the ones close to them and people they meet, or are in contact with. Retailers of essential products such as grocery item have, due to increased demand and requirements, faced challenges of inventory, logistics management and keeping their stores a safe environment. On the contrary, retailers of non-essential goods. In crises retail consumers change their preferences regarding such things as what goods to buy. Consumers are also likely to learn or develop new grocery shopping routines due to a crisis like Covid-19. Understanding consumer buying patterns emerging in crises plays an important role for the success of online grocery shop.[2]

Shopping for food and grocery products has witnessed a revolution in every retail market with the conspicuous changes in the consumer buying behavior driven by strong income growth, changing lifestyles and cost effective and efficient online and mobile technologies. As consumers allocate less time to shopping and more to other endeavors, their desire for convenience has mounted and their attention has been frequently diverted to virtual shopping as an alternative medium. Thus the rapid evolution of internet is changing the way customers shop and buys products and services and has rapidly evolved into a global phenomenon. So the shopping convenience has been one of the principal motivations underlying customer inclinations to adopt online purchasing. Online grocery, although still quite small, is gaining traction and becoming increasingly integrated into the daily life of Bangladesh consumers in every areas. Despite the growth and importance of online grocery, little is known about how people shop online for groceries. Previous studies identified factors influencing on-line buying behavior; challenges faced by on-line retailers but could not identify the purchase behavior of Bangladesh grocery consumers. [3] Over last few years different online consumer behavior models have been developed to understand and predict the wide range of decisions that consumers make based on the background of customer profile, online shop profile, and other intervening factors. Moreover, some studies have been conducted to investigate the determinants of customer intentions for online grocery shopping. Till now, there is no consensus on what are the factors that actually influencing people to shop grocery items through Internet However, researchers have suggested that as compared to traditional consumer behavior, online behaviors of consumers are subtly different in nature because of unique characteristics and interplay of technology, culture and differences in diffusion of e-commerce .[4]

Proposed System:

Introduction:

We developed an “ Online Grocery Shop “ website for all the people that can make shopping easy , fun , effective and can save the time as well. It includes above features that are mentioned in the flowchart,

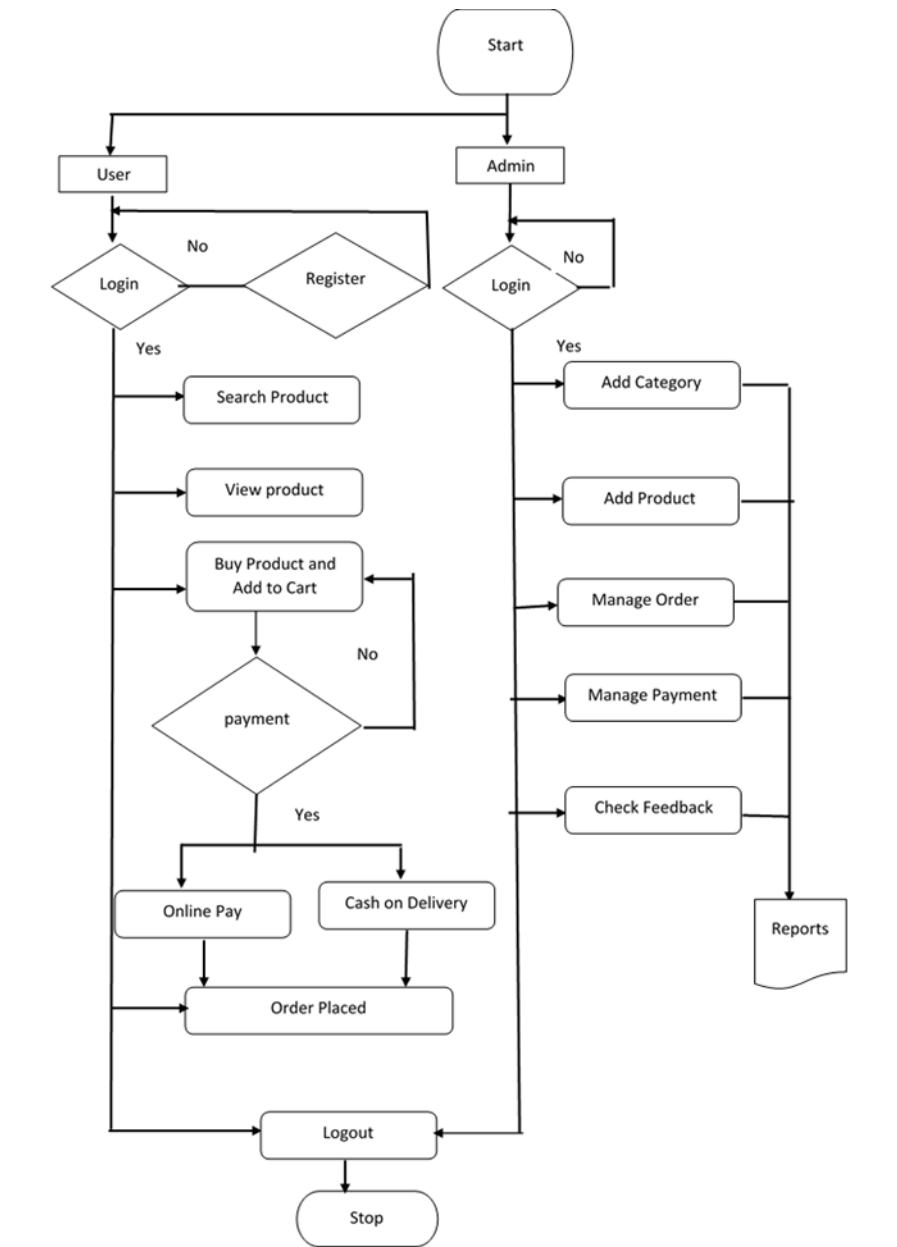


Fig 01: Flow Chart Diagram(Online Shopping Website)

The system consists of two user profiles as shown in the figure-3. There is a customer account and a admin account. Customers can order products through the account by a valid Gmail and a secure password. They can confirm their order after successful registration process. Customers can make many changes along with the order in this section. In the admin account now we have a registered admin which is my groupmate .She is a fixed admin here. If we handover the website to a company and there occurs a necessity of adding another admin or change the admin then it need to be done through the

database directly. So All the changes can be happened after a successful registration and login in the database admin panel.

All the features are divided into two consecutive panels. The Admin and the Customer or User.

Login Panel for Both User & Admin:

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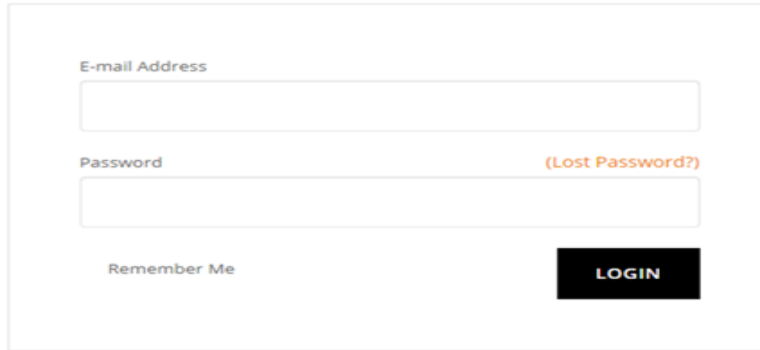
The figure shows a web form titled "SHOP - ACCOUNT" with a tagline "Tagline Here". Below the title, there are two main sections: "I'M A RETURNING CUSTOMER" and "REGISTER AN ACCOUNT". The "I'M A RETURNING CUSTOMER" section contains a form with two input fields: "E-mail Address" and "Password", followed by a "LOGIN" button. The "REGISTER AN ACCOUNT" section contains a form with three input fields: "E-mail Address", "Password", and "Re-enter Password", followed by a "REGISTER" button.

Fig 02: Log in &Registration page for user

In the admin account now we have a registered admin which is my groupmate .She is a fixed admin here. If we handover the website to a company and there occurs a necessity of adding another admin or change the admin then it need to be done through the database directly. So, All the changes can be happened after a successful registration and login in the database admin panel.

LOG IN

Admin Login



The form is enclosed in a light gray border. It contains two input fields: the first is labeled 'E-mail Address' and the second is labeled 'Password'. To the right of the password field is a link labeled '(Lost Password?)'. Below the password field is a checkbox labeled 'Remember Me'. A black button with the text 'LOGIN' in white is positioned to the right of the 'Remember Me' checkbox.

Fig 03: Admin Login Portal

User Panel:

In the user panel when a consumer search for our website he or she will get more pages. when he or she clicks the first page he will able to see a home page first. In the home page all the available products and categories can be seen all together. We can have a look,



SHOP

You can order products from here



Fig 04: User home Page

A: Shop:

In admin panel we add something in category option .the shop section of user panel are auto updated.

B: My Account:

In this option there are my orders ,update address and log out function .My orders section there are login and register two function .If anyone order something in our website they must be login first with their mail id and if they are new customer they must be register with mail id . After log in the account page take the customer to the checkout page to fill all the necessary data to confirm his order. When he puts all the data he is all set to receive his order. Now we can see the form on the next page,

***Consumers have to fill all the gaps. Unable to fill any gap or forget to fill any of them can make the order process delay.They have to click one the I ve agreed option as well to complete the order.

users also can update their information by update account.By filling the form again their address will be updated in the database. The admin can see the updated address of the consumer.

MY ACCOUNT

RECENT ORDERS

ORDER	DATE	STATUS	PAYMENT MODE	TOTAL
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MY ADDRESSES

The following addresses will be used on the checkout page by default.

MY ADDRESS [EDIT](#)

Fig-05: Shortcut way to change address in user panel

Another shortcut to see the product list is check the cart on the right side of the home page. Now if any customer wants to know the details of any product then he have to click on the product and after that he can know the description.

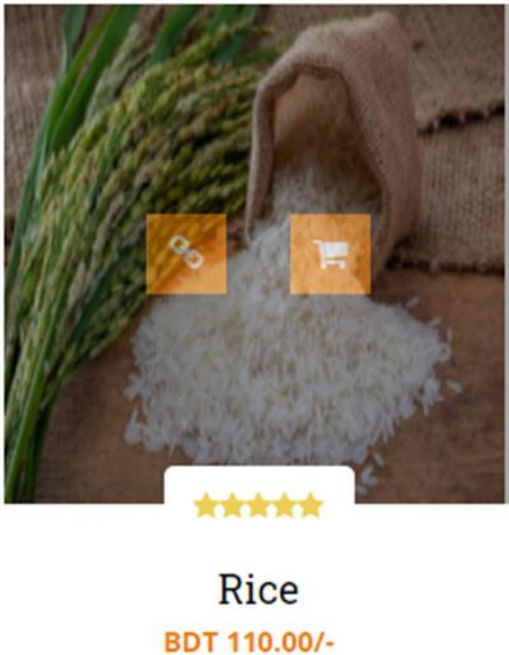


Fig-06: Description and cart icon



Fig-07: Product details

When he click on the left he can see the details. Along with the details he can know the reviews and can also add the product in his Wishlist for further shopping. But if he click on the right he can directly add the product to the cart in short.

After all the quarries and shopping he can log out from the page by clicking My Account>Log Out.

Admin Panel:

Admin panel contain many features like dashboard, categories, product, order etc. An Admin has all the power and control to deliver a product, cancel a product , discontinue a product, increase and decrease the price of product and product list.

All the pages also have sub options to make the page user friendly.

A .Dashboard:

. It's where we create and manage content, add functionality in the form of plugins , change styling in the form of themes. The "dashboard" is often displayed on a web page which is linked to a database that allows the report to be constantly updated.

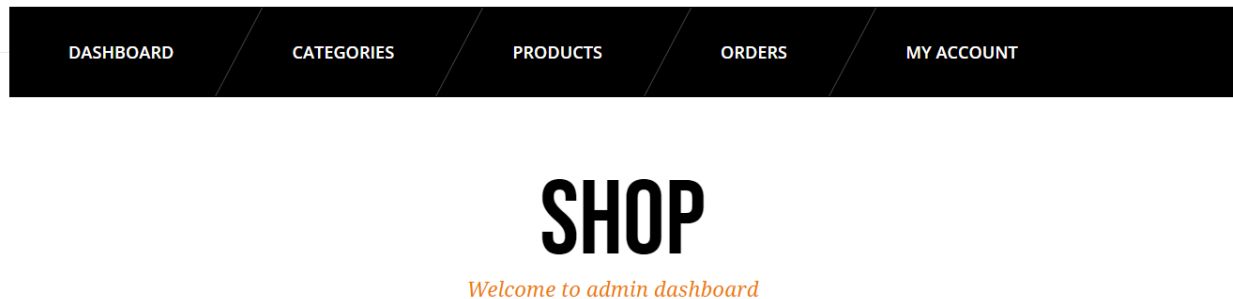


Fig-08: Admin Home page

In view Categories admin can see the existing categories of product. After that if he wants to edit the category then he can do that by doing some changes or if he wants to delete the category he can do that in the page . As well as for this command on other way he will have to do that in the database.

B. Categories:

In categories option there are two section. view category and add category. If we want to add some categories in add category section then it will be shown in view categories. And there are also edit and delete option .If we delete or edit something that also be shown in view categories.

C. Product:

product option is same as categories option. like there are also two section for product. view and add product. and its also act same as categories function.






View products also have the same rules and also can generated through database.

D: Orders:

In this function there are all of order that admin is received from users. And there is also shown the order details here.

View Orders also have the same database and list page to follow the order track. With this option admin can manage the orders very easily.

phpMyAdmin



Recent Favorites

New

ecomphp

- New
- admin
- category
- orderitems
- orders
- ordertracking
- products
- reviews
- users
- usersmeta
- wishlist

information_schema

mysql

performance_schema

sys

Server: localhost:3306 » Database: ecomphp » Table: products

Browse

Structure

SQL

Search














































Insert

Export

Import

Privileges

Op

	id	name	catid	price	thumb	description			
<input type="checkbox"/>				8	Mango	2	100	uploads/mango.jpg	Fresh Mango
<input type="checkbox"/>				9	Orange	2	200	uploads/orange.jpg	Fresh orange from garden
<input type="checkbox"/>				10	Beef	3	580	uploads/beaf.jpg	Fresh beef meat
<input type="checkbox"/>				11	Chicken	3	180	uploads/chicken.jpg	Whole Desi Chicken
<input type="checkbox"/>				12	goat	3	800	uploads/lamb.jpg	Fresh goat meat
<input type="checkbox"/>				13	Banana	2	40	uploads/banana.jpg	Fresh Banana
<input type="checkbox"/>				14	Egg	9	100	uploads/egg 2.jpg	Chicken Eggs
<input type="checkbox"/>				15	Liquid MILK	9	70/kg	uploads/milk.jpg	Fresh Cow's Milk
<input type="checkbox"/>				16	Lemon/Lime	12	20	uploads/lemon 2.jpg	Fresh
<input type="checkbox"/>				17	Green Grapes	2	80	uploads/green grapes.jpg	Fresh and Ripe. Imported from China
<input type="checkbox"/>				18	Red Grapes	2	90	uploads/red 2.jpg	Ripe and Fresh
<input type="checkbox"/>				19	Black Grapes	2	100	uploads/black.jpg	Ripe
<input type="checkbox"/>				20	HILSA Fish	4	300	uploads/HIL.jpg	Direct from Padma River
<input type="checkbox"/>				21	Prawn	4	250	uploads/pw.jpg	Fresh and Cultivated
<input type="checkbox"/>				22	Potato	1	30	uploads/potato.jpg	Big and Good Quality

Console

Fig-09 : Order list of customers with details in database

Admin can delete and postpone the order for any kind of unavoidable circumstances.

Add Product and Category follow the same formula. Admin will fill a form to add .

DESIGN IMPACT:

In this chapter, we discuss about the various impacts that our website has been able to generate.

A . Current pandemic (Covid- 19) Impact:

The coronavirus COVID – 19 has affected more than 211 countries and territories globally. Governments across the world are taking stringent precautionary measures and issuing advisories to ensure people do not come out of their houses and the chain of coronavirus is broken. The majority of people are following the guidelines given by their respective government officials. However, shopping of groceries may be single important task other than the healthcare, which has been forcing people to leave their house and enhance the risk of possible contact with the infected.

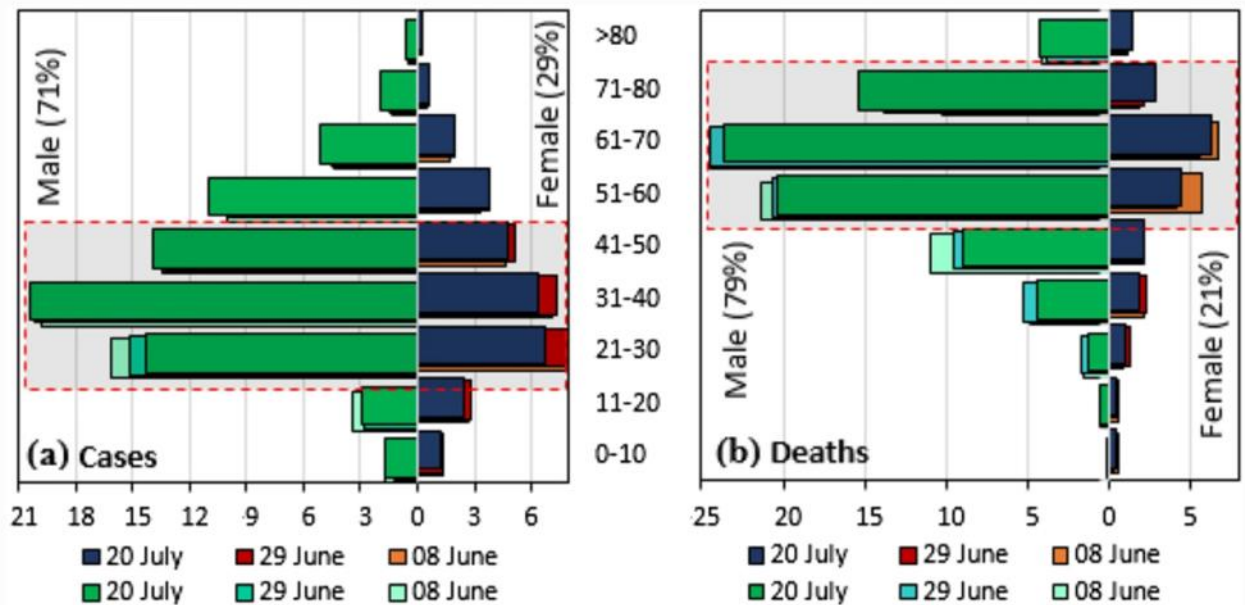


Fig 10: Current Statistics of Covid -19 (no of cases/ deaths)

From: Geospatial modelling on the spread and dynamics of 154 day outbreak of the novel coronavirus (COVID-19) pandemic in Bangladesh towards vulnerability zoning and management approaches.[5]

The COVID – 19 pandemics situation has changed the consumer’s way of shopping grocery. Consumers are increasingly taking online grocery platforms to buy even the perishables such as milk, eggs, and bread. Many online grocery providers are assisting local administrations to manage doorstep and contactless deliveries for safety measures. However, the online grocery market is facing challenges due to the pandemic. There is an increasing pressure on supply chain for delivering the products. The another challenge is, employees, as the online grocery providers need to equip their employees with proper resources and trainings to manage operations remotely with little or no disruption.[6]

B. Environmental Impact

Online shopping can be greener than driving to the store. Novel last-mile alternatives to conventional delivery trucks stand to make it even more environmentally friendly. The purchase that doesn't happen has the lowest delivery carbon footprint of all.[7]

C.Economic Impact

Online purchases take money out of the local economy.Less money comes to local businesses, which means they make fewer hires. Fewer hires means less money flowing into the local economy. Less money flowing into the local economy means fewer jobs, and less money available to residents to spend.[8]

Consider these online shopping statistics:69 percent of people have bought something online.Between 4 and 10 percent of retail sales happen online.A quarter of adults in the country buy something online at

least once a month. During the 2018 holiday season, \$126 billion was spent on online purchases in this country.[8]

All of these purchases are purchases that are not being made in a brick and mortar store. And that means that all of these purchases are having a measurable impact on the local economy. Is this impact bad news for local business? The reality is a little more complex.

D.Social Impact

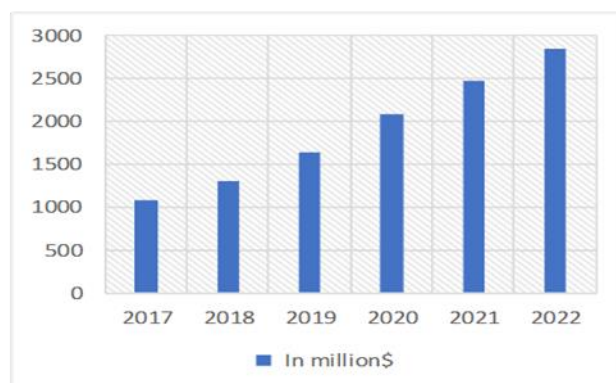
Due to online shopping is becoming more and more popular, there will have a lot of issues like, privacy, cheating, Fraud and security concerns, consumer expectation and etc. Online shopping websites is built to allow people to sell and advertise their item or buy any things that they needed via website.[9]

E.Sustainability

When we go through the history ordering groceries online became popular in the 1990s, in the United States, during what has been called the dot-com boom.[10] The When popularity was short-lived, however, and several online shopping services faced bankrupt. Online grocery delivery services are available throughout Europe, Asia and North America, mostly in urban centuries. Over the next few years, some of them survived economic hardship to remain strong in the market, and today there are numerous online grocery retailers.

COVID-19 has significant impact on e-commerce of the world and in some cases negative impact but overall e-commerce is growing rapidly because of virus. Coronavirus compelled to customers to use internet and make it habit in their daily routine (Abiad, Arao, & Dagli, 2020). Furthermore, many challenges facing by retailers in e-commerce, such as extend the delivery time, difficulty face during movement control, social distance and lockdown (Hasanat et al., 2020). The process of shipment and supply is quite slow now, but still people buying because they do not have another alternative. Hence, people moving towards technology due to virus. Furthermore, some products are very high in demand in market. Even retailers cannot fulfill the customer's demands such as hand sanitizers, toilet papers, disposable gloves, grocery, and dairy products. On the other hand, negative effect of COVID-19 on tourism industry, flights are in loss, international trading is very slow and stuck in their position.

Our system has been able to deal with huge number of users at a time. Now in this global pandemic this is the only way to survive. Without this people are getting used to with this system and they are also liking it. Therefore based upon these facts and continuous testing, our system is sustainable.. The online grocery shopping behavior might continue even after the period of social distancing ends, influencing consumers while selecting a retail channel.



Source: STATISTA.COM[11]

Fig 11: Bangladesh E-Commerce Market Size

E-commerce and COVID-19 Coronavirus impact the whole e-commerce of the world; it has changed the nature of business. According to research 52% of consumers avoiding to go brick and mortar shopping and crowded areas. Furthermore, 36% avoiding brick and mortar shopping until they get coronavirus vaccine. Coronavirus effects different on different nature of products, means the impact of COVID-19 on several product is very high and on some product less impact (Andrienko, 2020). Overall sale of e-commerce increases because of this virus, people avoiding to go out, keeping social distance and buying from home, working from home such as Walmart grocery e-commerce increases 74%. Moreover, the media usage also increased in this time and Facebook, google update their features to connect more people in single time such as Facebook introduce messenger for 44 people that is competing to Zoom. [12]Similarly, Google also launched updated version (Sarah Davis, 2020).

4.6Summary

This chapter has covered the different types of impacts that our website offers and those has been described and discussed. From the above given impacts we can conclude that our designed website is good enough to use under any circumstance.

Conclusion:

Over population is the major problem in Bangladesh. For this huge population people waste their valuable time on road in traffic jam. Technology has made significant progress over the years to provide consumers a better online shopping experience and will continue to do so for years to come. With the rapid growth of products and brands, people have speculated that online shopping will overtake in-store shopping. Online based stores can minimize the number of people on different types of places as well as on roads. Online grocery services meet a number of consumer needs including providing products for markets or helping the time starved consumer shop for the mundane weekly groceries. By delivering products to consumers' homes, the homebound aged and handicapped can participate in the shopping experience. Even though there has been a great decline in the number of pure-play online stores, there appears to be a solid market for shopping online. Using modern technologies we approach to build this website that can make people life easy. This model is effective as it creates distribution efficiencies and leverages reputation, which is an important consideration for consumers in light of the perishable nature of many grocery products. Even though the website has few features it can be used by any kind of grocery company easily. Because it contains all the main features that a grocery shop need. This system can help people make life easy, time saving, comfortable and also can put a remark on the economy of Bangladesh. In exchange, online shopping has opened up doors to many small retailers also that would never be in business if they had to incur the high cost of owning a brick and mortar store. At the end, it has been a win-win situation for both consumer and sellers.

Future Work:

The main objective of developing this system is to provide a basic platform for startup a online grocery shop. The system can be more improved than the current form. As our system

is a web-based, various forms of new features can be incorporated to this system as per the

requirements. In the context of securing this system further work can be done by including firewalls and other means of securing this system. Additionally, the interface of the system can be a work in progress to look more user-friendly.

There are some features that can be added such as,

1.Can have an android version:

First we work on converting the website into an android or iOS mobile application. This will help the website to grow more rapidly among people.

2.Signup with social media and mobile number

Today, customers do not like to fill the long sign-up forms while registration. Giving instant access to customers through social media profiles have been a great way to retain more customers and increase the number of visits to your online grocery mobile app. Furthermore, there are some customers who hesitate to sign up with social media due to security or privacy reasons, for such customers giving them an option of one-click signup form with email or mobile number is a better idea. The sign up section can be updated by including the popular social media sites. When a user wants to sign up for an account it can be made easier by incorporating the mainstream social media sites such as signing with one's Facebook or Twitter profile.

3.Product return

It is the most important concern of the customer whether the product will be replaced or not in case of any damage or other related problems. So it is a must add feature that will allow the customer to return the products.

4.Coupon codes & special deals, referrals and rewards :

Who won't like the special attention, similarly if the website admin are giving coupon codes to its customers on their every purchase, it will make them happy and encourage them to purchase more. According to stats shared by Invesprco team, 31 million coupons will be redeemed worldwide in 2019 and 62 per cent smartphone users are likely to use digital coupons in the future. Additionally, giving special deals on festivals or running contents are proved strategies to increase sales on your online grocery website. This feature will create interest for the customers (as they can earn rewards by referring) and they will refer your products to their friends. It will help your business to grow.[13]

10.3 Summary

This chapter has described the possible future applications of the design. But there are a lot of possibilities with the designed system. The system may need some research for different applications, though the principle of the designed system will remain as it is.

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