

Virtual marketplace using android

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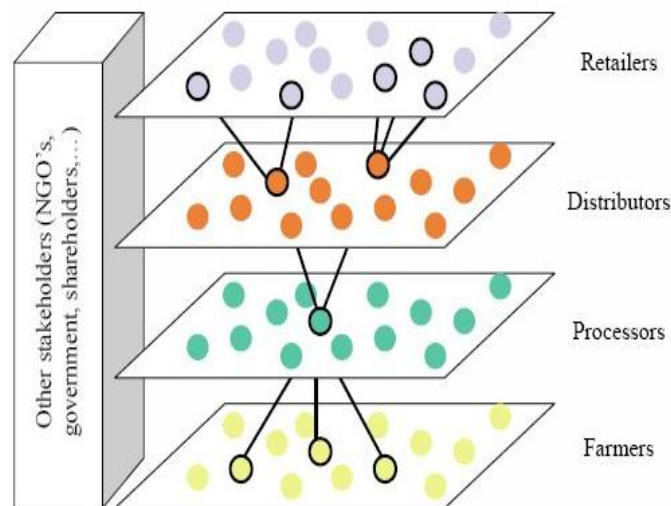
Abstract - *The importance of e-commerce has been understood much more since the dawn of covid era which confined the regulation for movement and gathering especially places that tend to pile hoards of people such as vegetable and fruit marketplaces. Now businesses as well as customers are forced to look for alternatives through technology ,once when agricultural e-commerce was just envisioned as just a mere facility for businesses and consumers now in this period it is viewed as an irresistible necessity. The role of e-commerce is more absolute now than ever.*

Such a shift from the existing practice of businesses the business owners will be required to educate themselves to modern practices which could be a burden in some cases. In regards to this shift to e-commerce this paper aims to address the best possible solution using android and cloud technologies in par with customer experience to meet up with the demand.

Key Words: *e-commerce, android, cloud technology, agricultural e-commerce, technology;*

1. INTRODUCTION

E-commerce is developing rapidly and has penetrated almost all sectors. Agriculture is identified as being promising due to its broken supply chain.[1]After analyzing and investigating the agricultural supply chain especially the supply chain of farm produce such as vegetables and fruits, it was found to be highly inefficient due to the lack of integrity in the supply chain module.



Another factor that contributes to the complexity in the agri supply chain is that the base commodity itself is highly perishable and has a low shelf time and expires within a short span and hence they have to be moved further down the supply chain at a faster pace.Hence the participants of the supply chain are forced to sell the goods to another as soon as possible which explains why the supply chain is highly fragmented and broken. There have been other proposed solutions for this such as refrigeration equipped warehouses that can prolong the expiration date of the perishable commodities and can enable stock holding of fruits and vegetables and other farm produce before taking those to the market.

1.1 LITERATURE SURVEY

This survey is conducted on the basis of several other semantics with an intent to to understand and visualize the market demand and needs. The subjects of this particular survey are individuals business owners such as kirana shops and mom-and-pop stores about 125 business owners of a particular demographic area agreed to take part in this survey which states their biggest challenges faced in their business everyday . Below is a visualized bar graph which represents the factors that the respondents feel challenging about.

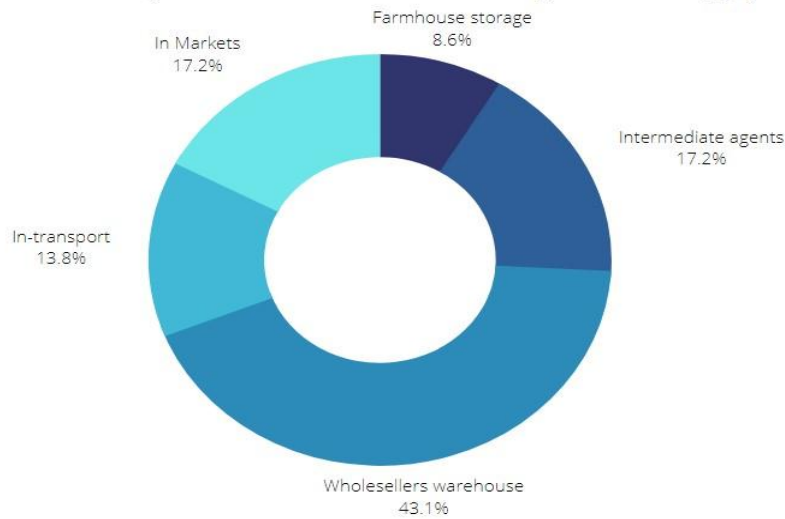


The above depictions clearly showcase that the primary issue faced by the retail shop owners who sell farm produce bought from the market is the factor of commutability, from the opinions the business owners state that commuting long distances to market and back to the shops add complexity to the daily function of the business and proves to be laborious. This data points out that the facility of buying farm produce from the comfort of home in a remote mode is essential and highly in demand in the retail sector of businesses. Thus giving us a clear insight of market requirements.

Another important finding in this survey is that shop owners also feel that the prices at which the goods are sold in the market tends to be higher than the expectations. The reason has been stated by the owners was that the the prices at which they used buy from the local farmers who produce in that particular local area ,sell at a very much less price but since the goods are not available at all the time they are being forced to to buy buy the goods from the the markets or traditional “Mandis”.

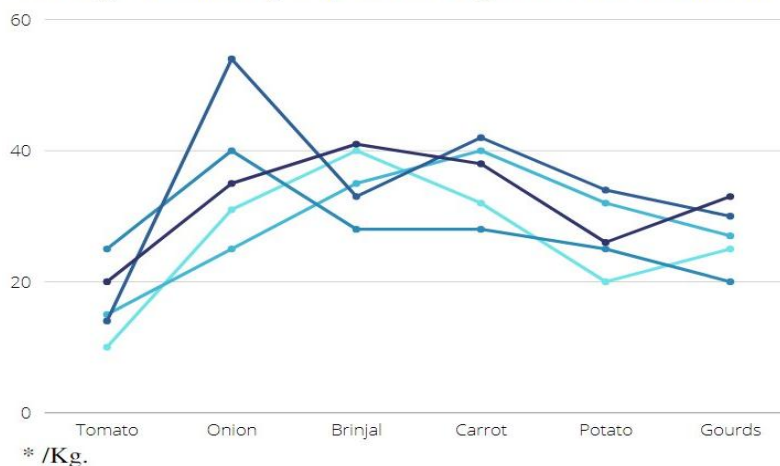
There was another study conducted on the supply chain of farm produce to understand the timelapse of the goods from the source to retail since it affects the quality of the commodity greatly. Below is the visualization from the data extracted from the study.

Period of stay of commodities at each stages of the supply chain



The results from the survey clearly indicates that the goods are being stored for long periods of time reducing their shelf time and quality due to such inefficient unplanned supply chain model. The other alternatives to this solution also proves to be expensive and thus not implemented on larger scales.

Change in volatility of prices of vegetables over 6 months



[2] As observed from the above result it could be seen that the prices of the vegetables over a period of six months changes variably and unpredictably. This could be a factor of instability within the supply chain system. This sort of sudden spike and downward trend of the prices affects everyone who participates in the supply chain and hence a proper inert and stable system has to be put in place to avoid search chaos.

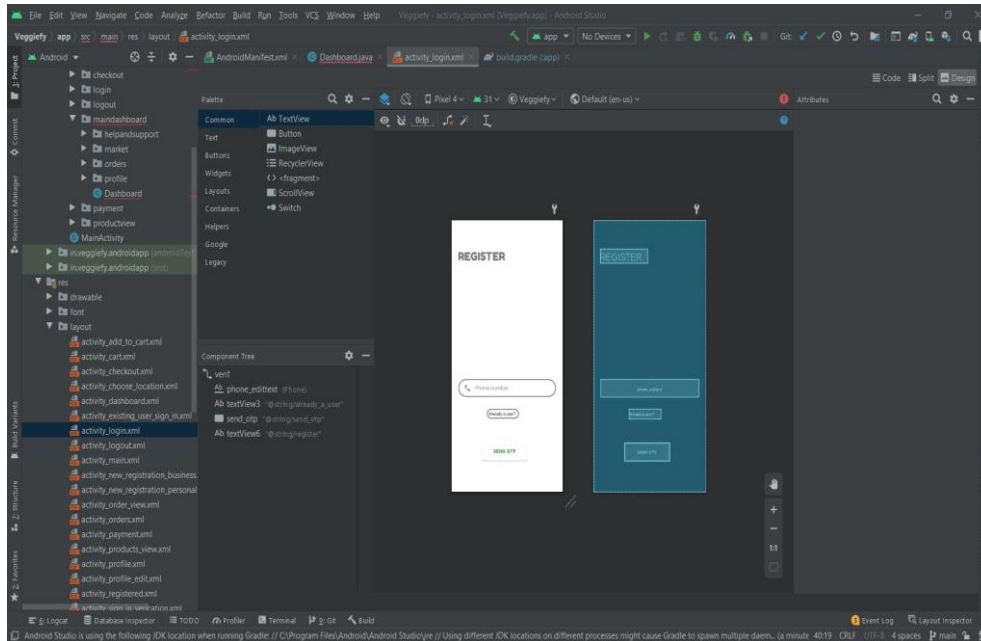
Generally it is farmers who tend to take up such insurmountable risks due to such varying prices of a commodity since it could be unpredictable for them to calculate what the selling price of the commodity would be and since they operate on strict finances this causes much more trouble than it should be.

1.2 SUMMARY OF THE LITERATURE SURVEY

Hence it is understood that another priority for the shopkeepers is the price of the commodity since it marginalizes their profits to the maximum. Shop owners also state that sometimes they even have to sell the goods for no profit at all as they will be expiring very soon and will have to be disposed of.

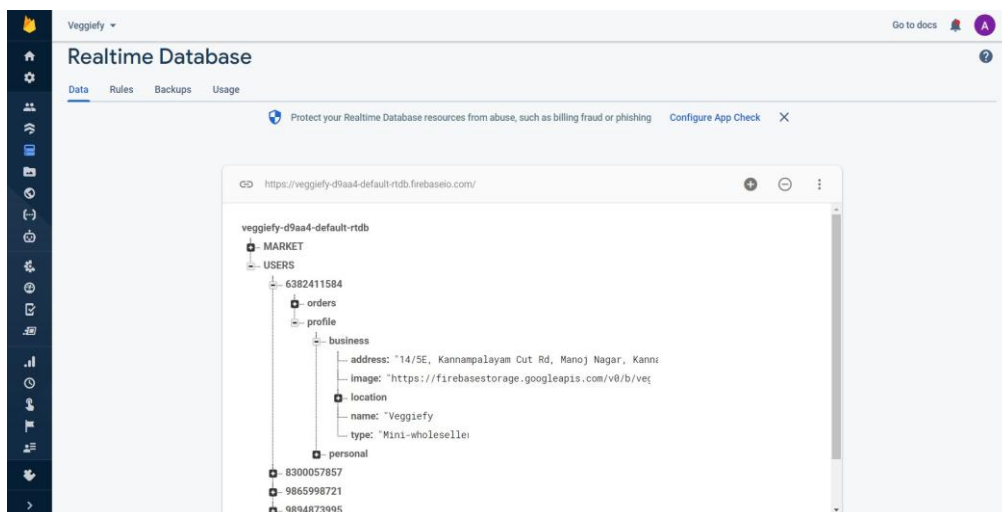
2. PROPOSED SYSTEM

[3] Android is the most popular operating system in the world, with over 2.5 billion active users spanning over 190 countries. The customer facing Android application has been developed using Android studio. When the user first installs the application the user is prompted to create an account by entering the required details of his business and contact information. The location of the business is picked by using the Google maps place picker API.



NoSQL database :

Now acquired information from the user such as business name, coordinates related to the location of the business etcetera are stored in the firebase real time database and files like images are stored in the firebase storage.



The in-app payment gateway is being provided by a third party provider called Ippopay. The script to perform the payment operation is written to firebase-functions which listens to server calls from the client application and creates an order in the provider's server and then the payment is initiated.

3. CONCLUSIONS

This paper is about providing an efficient solution to the farm produce supply chain. [4] The ease of maintaining the business for small scale business owners and also reducing prices of the commodity for both the retailers and the customers, by utilizing the Cloud infrastructure and android platform .Hence it is imminent that such a proposed system is favorable and highly efficient in the existing vegetable , farm produce retail market and is capable of eliminating plenty of intermediaries in the supply chain who exist due to inefficiency in the supply chain.

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