

FarmToHome
Project
for
PHY 1901 Introduction to Innovative Projects

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To

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In

TE1 SLOT



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Vellore Institute of Technology
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SCHOOL OF ADVANCED SCIENCES

Project

Introduction to Innovative Projects (PHY 1901)

It is certified that the project entitled “*FarmToHome*” is the bonafide work for Project component of Introduction to Innovative Projects by the following students

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Introduction

How do farmers traditionally sell their crops?

Farmers have many possibilities to sell their crops. They can sell it directly to the customer or offer their goods to small stores and restaurants. The most popular one is the farmer's market, where some farmers even have regular customers. Plenty of farmers combine most of these methods to succeed.

Bigger farms use a middleman to sell their products. 'Middleman' is a distributor who takes farmers' crops and sells them to restaurants, shops, and markets. They use this method because they have a large range of products and don't have time to distribute them by themselves. This also helps with the difficulties of finding new buyers and customers.

Farmers must maintain a good image. Properly cleaning products is a way of maintaining regular customers. High-quality products increase the chance of returning customers. Farmers also preserve their relationships with customers by explaining how they grew their crops.

Some states such as Karnataka, Maharashtra, and West Bengal already allow cash and carry retailers to buy directly from farmers under the model Agricultural Produce Market Committee (APMC) Act, several others such as Uttar Pradesh don't permit this. In these states, retailers procure via the mandis.

The Farmers' Produce Trade and Commerce (Promotion and Facilitation) Act, 2020: This Act aims to build an ecosystem that provides farmers the freedom to sell their produce, multiple trading options, remunerative prices, and an efficient and barrier-free agricultural market. The Act proposes to fulfill these objectives in two ways: First, by enabling the farmers to sell their produce directly to any traders outside the state government-controlled markets. Second, by facilitating the setting up of electronic agricultural trading platforms. Presently, India's agricultural markets are regulated by the states under the Agricultural Produce Marketing Committee (APMC) Act.

Under the APMC Act, the states can establish agricultural markets, popularly known as mandis. The sale of agricultural commodities can occur only in the mandis through auction. The sales process in mandis is

regulated through commission agents (CAs) who mediate between the farmers and traders. Over half of the farmers, we interacted with (57%) are unhappy with the mandi system of sale.

We came up with an alternative, digitized method for farmers to sell their products while enabling them to receive a fair price and several other advantages which are discussed in the subsequent sections. ‘FarmToHome’ is an app created by us that allows distributors to list their inventory and prices and sell them to consumers within their district.

We also looked into our potential competitors, and we identified one primary competitor. The analysis we conducted is provided below.

Uzhavar Santhai

- The objective of uzhavar santhai:
 1. To facilitate direct contact between the farmers and the public.
 2. To provide fresh vegetables and fruits at a reasonable price daily without any interference of middlemen.
 3. To provide correct measurement to the consumers.
 4. To give full satisfaction to the farmers and public.
 5. To aim for providing higher price than that of the wholesale price to the farmers for their vegetables and fruits.
 6. To provide fresh fruits and vegetables at a lesser price than that of the retail price to consumers.
- The Uzhavar Santhai also functions as a Technical Information Centre to the farmers
- It also acts as a Technical Training Centre for the farmers.
- Seeds and Other Inputs are also provided in some Uzhavar Sandhais
- Facilities provided to the farmers in the market:

1. Photo Identity Card

2. Transport Facility

3. Allotment of stalls

4. Prices Fixation

5. Public Address System

6. Supply of weighing scales

- The Uzhavar Sandais are maintained by the Market Committees of the Department of Agricultural Marketing and Agribusiness.
- The concerned Market Committee Secretary will be the coordinator for the Uzhavar Sandai as an additional charge to his duties.
- For the Uzhavar Sandai that is not established at the committee headquarters the Assistant Director of Agriculture/ Assistant Director of Horticulture in the jurisdiction will hold the additional charge of Coordinator of Uzhavar Sandai. The Coordinators of Uzhavar Sandai must look after the daily functioning of Uzhavar Sandai, price fixation, etc.
- Factors which are influencing while purchasing in uzhavar sandhai:
 1. Good quality ranked with the score of (823),
 2. Affordable price ranked fifth with a score of (427),
 3. Timely availability ranked third with a score of (567),
 4. Easy applicability ranked second with a score of (741) and
 5. Reliability ranked fourth with a score of (442).

- To conclude uzhavar sandhai as an innovative market system plays a strategic role in making the agricultural marketing system highly effective. The government machinery takes all precautionary measures in ensuring efficient functioning of the uzhavar sandhai. The farmer market must always be kept away from the private traders and other middlemen. Continuous vigilance and follow-up actions need to be taken by the government officials.
- The government action alone would not be sufficient, and the consumers and farmers must go hand in hand to get the complete elimination of middlemen to preserve the existing mutual benefits.

Objective of the Project

- To stop farmers from losing out on significant profits due to
 - Middlemen
 - Spoilage of goods during storage
 - Pandemic
- To help consumers in bringing fresh goods directly from farmer's farm to the consumer's home.
- To encourage farmers to be tech-savvy and to promote digital India
- **By making an app that:**
 - Provides higher prices than that of the wholesale price to the farmers for their vegetables and fruits, thereby allowing them to generate more profits.
 - Enables farmers to quickly sell off produce thereby reducing storage costs and risk of damage by pests.
 - Eases to obtain fresh produce at lower rates which may encourage the consumers to adopt a healthy lifestyle

Definition of the problem

There are many flaws in our farmer-market system, where the farmers go through a huge blow financially due to the enormous cost-cutting in various stages of a farmer-retailer-buyer stage by the middlemen putting the farmers in massive debts which they are unable to pay, despite the government trying to implement various schemes to help the farmer, they are unable to fully provide any aid due to the cost cutting, existing debts and low income of the farmers. Apart from the middlemen the farmers also face a problem of not being able to store their produce in a safe and hygienic storage room due to lack of accessibility or the inability to afford causing largescale spoilage of food. This pandemic has put them in a crisis too; not being able to sell their produce in the market or other retailers, or even buying essentials items from the market which are a necessity to grow healthier crops, not being able to hire workers for help on the field whilst being off field. It's not just the farmers that are affected but also the buyers when the huge concern for quality is questioned, unable to trust the retailers in the current market buyers are often left in doubt about the quality or price of the crop they are purchasing.

Methodology and Experiment

This app creates an interface which allows both buyers and distributors to buy and sell Commodities. The app allows distributors to login with their credentials and put up the goods they want on sale while showing them their selling page, inventory and potential buyers for their goods, a user-friendly interface is implemented for this app so that it could be used by everyone without much effort. The buyer end of the app also is handled in a similar way, where we'd be able to add commodities into a cart which could be easily managed and checked out through various modes of payments while being completely transparent with purchases.

Research:

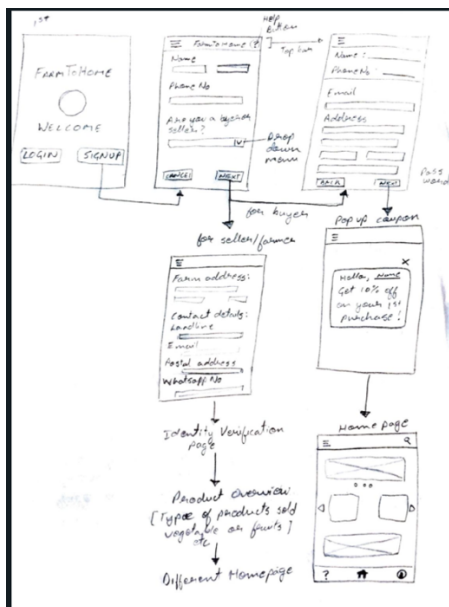
We prepared a report on the problems faced by farmers who opt for more traditional methods of distributing their products. We then ideated an app that could help alleviate their problems and the difficulties we might face while creating the app and during the use of the app by the farmers.

We also prepared a report on potential competitors, namely the Uzhavar Santhai program, given in the previous section.

Prototyping:

We began with rough sketches on paper during the ideation phase, outlining the different frames and features we wanted in the app.

Figure- Scan of original hand drawn frames.



Next, we began creating low fidelity wireframes using an open source software called Figma. The wireframing and User interface was designed in the Figma application. An easier UI design was implemented, so that the user will be able to use the app efficiently even if they aren't well versed in the technological field. Each frame represents the different pages the app displays under different situations.

Figure- Screenshot of Figma workspace with different pages of the app.



Next, we set to coding our app in Android Studio. We created a prototype of the app with all the basic features and imagery.

Figure- Screenshot of code

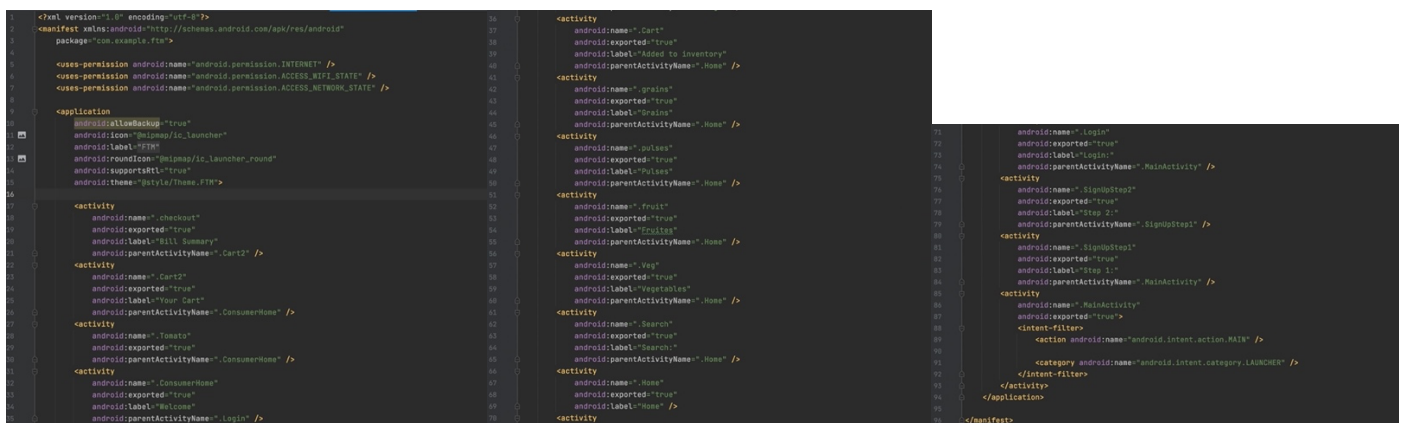


Figure- Final app screenshots

1. Create account

FTM

← Step 1:

Name:

Dev

Sinha

Phone No.:

8130634502

E-mail:

devandapple@gmail.com

Password:

Are you a consumer or a distributor?

☒ Consumer
 ☐ Distributor

← Step 2:

Address:

3415, Ats 2

sector 50, Gautam Budha Nagar

Noida

U.P.

Farm To Home

Welcome

LOG IN

SIGN UP

Sign Up

NEXT

FINISH

2. Customer flow

FTM

← Login:

Farm To Home

Welcome

LOG IN

SIGN UP

Enter the Phone No.

8130634502

Enter your password

☒ Consumer
 ☐ Producer

LOG IN

← Welcome

Get 50% off on Rice

Fruits

apples
Malus pumila

mango
Mangifera indica

Pulses

← FTM

PRICE: Rs32/Kg

Quantity: 34

TOMATOES

Cost: Rs 455

Quantity: 5Kg

Source Address: 3415, keshav lal and sons farms

ADD TO CART

← Your Cart

TOMATOES

Cost: Rs 455

Quantity: 5Kg

APPLES

Cost: Rs 2000

Quantity: 12Kg

EMPTY CART

CHECKOUT

← Bill Summary

BILL SUMMARY:

Item:	Price:
APPLES x12	2000
TOMATOES x5	455
Sub Total: 2455	

+ ADD COUPON

Payment Info:

PAY USING:

Google Pay

Confirm order

3. Distributor flow

FTM

← Login:

Farm To Home

Welcome

LOG IN

SIGN UP

Enter the Phone No.

8130634502

Enter your password

☐ Consumer
 ☒ Producer

LOG IN

Home

Vegetable

Fruits

Pulses

Grains

← Fruits

ADD

Add quantity and price

Quantity: 23

Price: 150rs/Kg

Your Price: 44

Quantity: 10

Price: 350rs/Kg

Your Price: 350

Quantity: 23

Price: 30rs/Kg

Your Price: 12

ADD TO INVENTORY

← Added to inventory

ITEM SUCESSFULLY ADDED TO YOUR INVENTORY!!!!

Your inventory:

Quantity: Rs 73kg

Market Price: 43rs/Kg

Your Price: Rs 17/kg

Quantity: Rs 18kg

Market Price: 150rs/Kg

Your Price: Rs 120/

Pick up Address:

Plot : 176 A, Sector 54

jila: raunakpur, Noida

Noida

Uttar Pradesh

Summary of results

Hence, we have created this app which allows both the farmers and the buyers on this app to distribute/ purchase their required goods, while having both the interests of both party in mind, The farmer not losing their profits due to middlemen, despite the government implementing plans for increasing farmers income, they are unable to provide the benefits to farmers as middlemen take away a major chunk of profits, spoilage of goods whilst storing due to lack of bad facilities in the area, the pandemic situation prevents the buyer-seller interaction causing a huge blow to the business. This way we are encouraging our country's farmers to be more tech efficient thus promoting a more digital India and being able to sell produce at a faster rate all whilst the buyer getting fresh produce from Farm to for a healthier lifestyle. This way we can provide for our country's farmers, and they can provide for us.

Project Conclusion

▪ Advantages of the app:

- Since small quantities of farm products can be sold, small producers can participate.
- The farmer sets the price or is more control of the price. Good products and services can get attractive prices and therefore, small farms can be profitable.
- Payment is usually immediate.
- In addition, farmers receive instant feedback from customers on products and services. The farmer can improve his/her business through this input and increase farm profitability.
- Ensures your product is exposed to a higher volume of consumers who will generally pay the highest price per Kg / piece, while also putting you in direct competition with other vendors.
- A great way to build customer loyalty, get direct feedback, and promote your farm business.

- Direct marketing of agricultural produce helps in complete elimination of middlemen and commission agents who charge a high level of commission fee from the agriculturists/farmers coming to the market yards for selling their produce and then artificially inflating the retail prices.
- Lockdown due to the pandemic has affected the farmers to a large extent but by this app, it's possible for them to earn like how they did before the Pandemic.

Farmer's market sales can make for notoriously long days, being off the property or investing in staff, running trucks, and dealing with weather-related uncertainty on market days. Selling at the market requires a high level of customer interaction. The farmer needs to have proper transportation and storage, the ability to accept multiple forms of payment, and will need to develop a pretty good idea of what you'll sell on a given day. Farmer also wants to keep in mind the required vendor fees and other requirements for the market.

▪ **Obstacles faced:**

- Since a farm using direct marketing is responsible for what it grows and how and to whom it markets its products, the risk is much higher than it is for farms using wholesale markets.
- Farm direct marketing is equivalent to starting a small business in addition to the farm. Using farm direct marketing, the farmer takes on new roles and becomes responsible for marketing, retailing, advertising, customer relations and so on.
- Transport of goods from the farmer to the consumer can be difficult in some situations.
- Lack of internet in rural areas might hinder farmers from adopting sales via the app.
- The method requires the personality and patience to work with people: the farm's customers. There are also regulations that pertain to farm direct marketing that other farms do not worry about.

- Lastly, even though the potential for profit is much greater for small farms marketing directly, this approach will require long hours to produce crops, service customers, keep up with the competition, and more.

▪ **Improvements:**

- We would like to work on the interface more to simplify it further.
- The app's code could also be updated and some more features can be added.

References

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