A Digital Platform Where Sellers meet Cooperative Societies for Agricultural Products

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Abstract— To investigate the problems connectedwith Income of the villages and providing appropriate and practical solutions to them so that the Income of the villages can be increased to changetheir living standards. To promote entrepreneurship in Villages and make villagers to establish small scale industries under Co-Operative Societies. To promote Agricultural Products, Handicrafts and Goods produced by the villagers Via an E- Commerce portal and then marketing Offline as well as online. So that we can Decrease Unemployment as well as increase the income. Agriculture is the most important sector of Indian Economy. Indian agriculture sector accounts for 18 percent of India's gross domestic product (GDP) and provides employment to 50% of the countries workforce. Making Farmers to sell their Agriproducts online through e-commerce store and make money withoutinterference of any mediators, this also avoids delayin getting returns after sales. All these things help Village to increase economy by commercialization of goods. To increase the standard of living of that villagers.

1. INTRODUCTION

Why there is a Need to Increase the Income of Villages in India? Even though We Have ManyVillages are in developing stage. We will see Now….According to data released by the Socio- Economic Caste Census (SECC) survey, seventy- five percent of rural households in India have amonthly income of less than Rs 14,000 ($79), 51 percent of households make a living from manual labor, 28 percent (over 50 million) of households donot have mobile phones or any form of communication.[1]

More than half of rural households depend on manual labor for livelihood, and 75 percent of the rural population, or 133.5 million families, earn less than Rs.10,000 per month.[2]

"A preliminary analysis by statista.com reveals a grim picture of rural areas with three in four rural households earning less than Rs.14000 per month and almost 90 percent of households have incomes of less than Rs.10,000 per month," Himanshu (he uses only one name), an agricultural economist with Delhi's Jawaharlal Nehru University wrote in Mint, citing the findings of the Arjun Sengupta committee (2007), which identified 77 percent of India's population as poor.

Although it is not meant to be a comparison of poverty estimates, the statista.com data reveals that about 670 million Indians in rural areas alone live onRs.33 per day (75 percent of rural households is around 134,373,569 households; five members per household gives us a total of 671,867,845 people)[3]
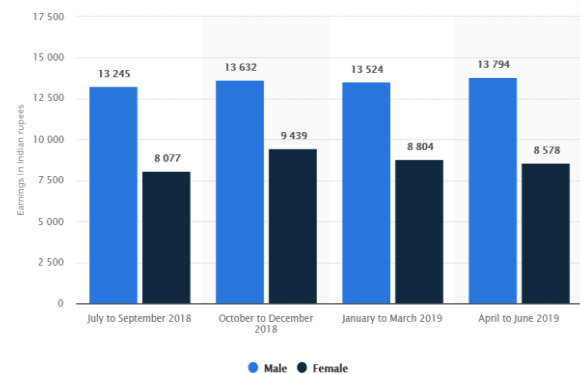

Figure 1. Average earnings from regular employment* in rural areas across India from July 2018 to June 2019, by gender

2. Literature Survey

Farmers ,The key people in Country's Economy as well as Village Revenue, as discussed earlier most people in rural Areas Rely on Agriculture as their primary source of income. If someone is not going on with Agriculture then they must be feeding themselves with the help of Handicrafts or Working as Labor in Fields. But actually these two are the major Contributors to the country's Economy and they own largest Share in Country's GDP. So, if we focus and develop these segments through technology, it not only helps to Increase Village revenue but also provides Employment for people and Avoids Wastage of Produced Goods.

To avoid wastage and reduce unemployment, our system proposes an approach which removes middlemen. Farmers can decide their own price and market outreach will be throughout India. We also plan to setup handicraft industry and train local youth and women on handicrafts.So,ultimately Farmers income increases and they will have global outreach for their products under single brand. Unemployment can be reduced and women empowerment can also be done additionally.

3. IMPLEMENTATION

Our Portal receives applications from Existing or newly established cooperative Societies to provide Digital solution and Services.

These applications are properly scrutinized and verified with Government with the submitted Cooperative Society registration ID and if everything is correct then we start providing them our Services by Giving them access to our E- commerce Store as a Seller with login credentials. Once they are logged in, They land at a Dashboard from where they can Add Products to the store and manage Data of farmers under Society, Manage Orders, See Analysis of The Previous Orders.[4] While adding any type of product there is an option to mention who submitted the product and quantity they have submitted. So, this will help farmers and Society to be transparent and distribute revenue easily. All these will be managed by technical operator present in cooperative Society who recruited through Government.

E-commerce portal will have simple user interface which everyone can access easily and can be logged in with Cooperative Society unique ID, after logging in they can see their contribution to the current stock of Agricultural products, Handicrafts, Handlooms, other goods. They can see their respective profits generated through sales and amount spent on transport and other tie ups as their share.

Social media marketing, Data analytics are handled by our technical team and they always work hard to increase the sales more and more as per the results of analyzed data.[5]

Services which we provide are solely focused on Increasing Income of Villages by implementing current technology trends on traditional Goods and Products. Awareness camps will be hosted to establish and renew Cooperative Societies using our portal.We take proper measures to avoid fake profiles/fraudsters from registering on our E- commerce portal. We take necessary documents and verify the authenticity of the person before he registers as Farmer/Goods Producer/Artisan/Mass Buyer/Retailer. This will make our portal to be safe from cheating and fraud.

E-commerce portal will be having all the required security measures like SSL certificate, anti DDoS

Protection, Secure and authorized Payment gateway. Payments made to Cooperative Societies will be settled easily once the stock is finished as we are using a secure payment gateway which deposits the sale returns as soon as possible.

3.1 Python

Python is a high-level interpreted general purpose programming language. Python's design philosophy emphasizes code readability through the extraordinary use of large amounts of free space. The language's construction and object-oriented approach is designed to help programmers write clear and logical code for small and large projects.

Python was developed in the late 1980s and first published in 1991 by Guido van Rossum as a successor to the ABC programming language. Python 2.0, released in 2000, introduced new features such as list comprehension and a garbage collection system with reference counting, and was discontinued with version 2.7 in 2020. Python 3.0, released in 2008, was a major overhaul of the language that was not fully compatible. with feedback, and a lot of Python 2 code doesn't work on Python 3 unchanged. With Python 2 ending (and pip discontinuing support in 2021), only Python 3.6. and will be supported later, with older versions still supported, e.g. Windows 7 (and older installers that are not limited to 64-bit Windows).

Python Translator is supported for major operating systems and is available for several more (and many more have been supported   in   the   past).

3.2 Django:

Django is a popular free open source web system based on Python that follows a building model layout (MTV) design. it is managed by the Django Software Foundation (DSF), an American free association that was founded as a 501(c)(3) without success.Django's main goal is to make it easy to create complex information pages. This system emphasizes the ability to reuse and "live" parts, less code, poor connectivity, fast reversal of events and, consequently, the standard not to overhaul the same. Python is used entirely for settings, documents, and information models. Django also provides a discrete authoritative create, read, update, and delete interface that is incrementally thought-provoking and designed by the administrator model.
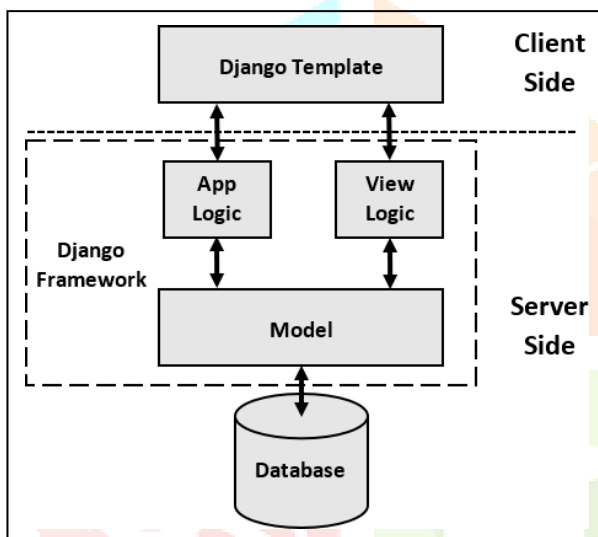

Figure 2. Django website Architecture

Django was born in the fall of 2003 when Lawrence Journal-World online software engineers Adrian Holovati and Simon Willison started building applications using Python. Jacob Kaplan-Moss was recruited soon after Django's move, just before Simon Willison's interim position ended. it was publicly presented in July 2005 with the approval of BSD. The system is named after guitarist Django Reinhardt. Adrian Holovati is probably a Roma jazz guitarist and a big fan of Django Reinhardt.

In June 2008 it was announced that the newly founded Django Software Foundation (DSF) would support Django in the future.

Despite the terminology itself, such as naming the calling element that generates the HTTP view-

response, Django's central structure is often viewed as an MVC design. This is by no means a social map (ORM) article intervening between an information model (identified as a Python class) and an electronic dataset (a "model"), a framework for preparing HTTP requests with a web framework ("Overview") and a URL based controller. simple articulation ("Controller").

3.3 Sqlite3:

SQLite is a relational database management system (RDBMS) in the C library. Unlike many other management systems, SQLite is not a client-server database engine. On the contrary, it is an integrated program. SQLite usually follows PostgreSQL syntax. SQLite uses dynamically poorly implemented SQL syntax that does not guarantee domain integrity. For example, this indicates that rows are often inserted into columns defined as integers. SQLite tries to convert information between formats. In this case, the string "123" is converted to an integer, but the conversion is not guaranteed, and the information remains as if it were not possible.
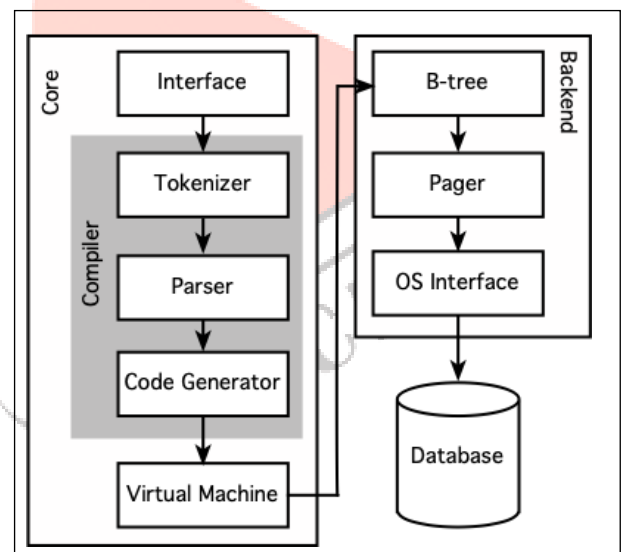

Figure 3. Sqlite3 Database Architecture

SQLite is a popular integrated client / database storage software for application software such as web browsers. It is currently used by several popular browsers, operating systems, and embedded systems (e.g. mobile phones), so it is probably the most popular database engine. SQLite has links to various programming languages. SQLite3 is often integrated into Python using Gerhard Haring. sqlite3

module. Provides a SQL interface that conforms to the DBAPI 2.0 specification described in PEP249. This module comes standard with Python 2.5.x and later, so no installation is required. First, create a connection object that represents the database and possibly a cursor object to help execute any SQL statement.

3.4 FrontEnd:

FrontEnd is very important in this project because it is the user interface which takes input and makes user aware of the features provided by the platform. users will see frontend part as UI on the client-side, and makes requests, access features and functions of website. To make the Website simple and user friendly we have used basic web technologies like HTML, CSS, and Javascript so that the user can view and interact with website without any issues.Website is compatible in all the browsers and supported by every operating system.

HTML is like heart of the website body. It acts as the skeleton of any web application. The latest and mostly used version of HTML is HTML5 published in October 2014 by W3 recommendations**.**
CSS (Cascading Style Sheets) is a styling language that controls the style and UI,UX of the webpage which makes the website to look neat and eye pleasing to the user. CSS also makes the Website easily accessible by the user without any problem on any device. CSS makes the Website responsive and makes it to fit to the screen size of the device using which the website is being accessed.

Javascript is a high level programming language that enables event-driven tasks and makes the page dynamic, to improve the user experience. Java Script is often just-in-time compiled, and multi-paradigm.
It has curly-bracket syntax, dynamic typing, prototype-based object-orientation, and first-class functions .when used various events like a mouse click, scroll, etc.frontend technology provide info or features as based the on the eventhappened.

4. WORKING MODEL:

Using web technology Portal People set up an e-commerce store which is used to sell products online and acts as a platform for government and various funding schemes under one roof. Portal People collect data of sales to analyze the demand for various products in different regions[6]. Data Analytics is implemented on the collected data.Results from this analytic report gives us a clear view of demand-supply chain and we use this to fix prices for products. Demand of various products in different regions is analyzed.

Portal People create efficient logistic maps and connect warehouses accordingly. Machine Learning Algorithms are used to generate online marketing strategies and predict the sales in future which helps in promoting our website. Internet of Things(IoT) is implemented to track logistics in real time. This real time tracking helps buyers and sellers to get information of delivery. IoT is also implemented in warehouses for maintenance[7]. Web Technology, Data Analytics, Machine Learning and IoT are used to develop the website in order to solve the marketing problems in villages and increase revenue. Portal also perform Search Engine Optimization to generate more traffic for the portal.

5. OUTPUT

This solution will Increase income of village ,farmers ,small scale industries and also reduces unemployment in villages.Adopting and Implementing this system in villages through cooperative societies leads to Increase in Income[8]. If village income raises, then it helps in developing the regions economy. This economic development brings positive impact and employment. We have improved this system which will cover all areas in which Government schemes need to be improved.Awareness camps will be hosted to establish and renew Cooperative Societies using our portal[9].New technologies are introduced in small scale industries, handicrafts, agriculture to increase the production.If Village industry becomes more developed there will be job opportunities for the local village people, this will increase the wealth of the Village.
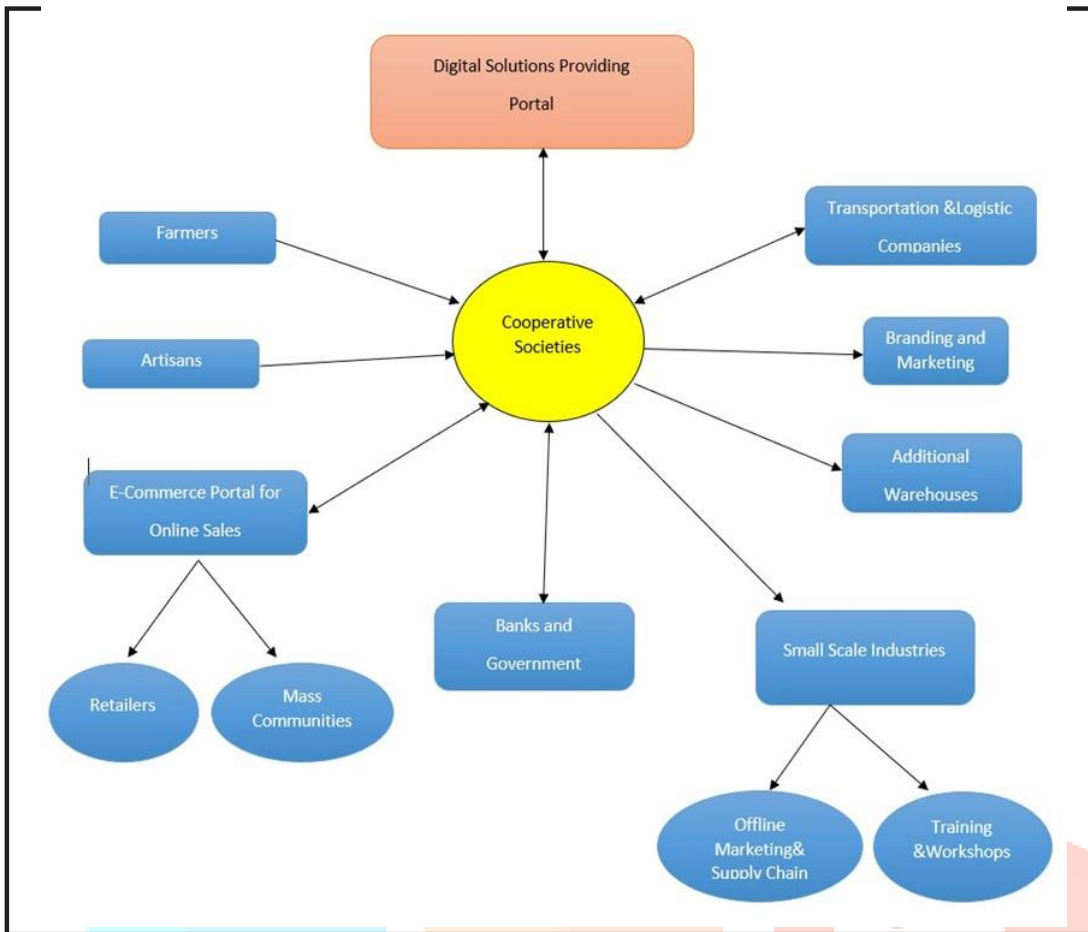
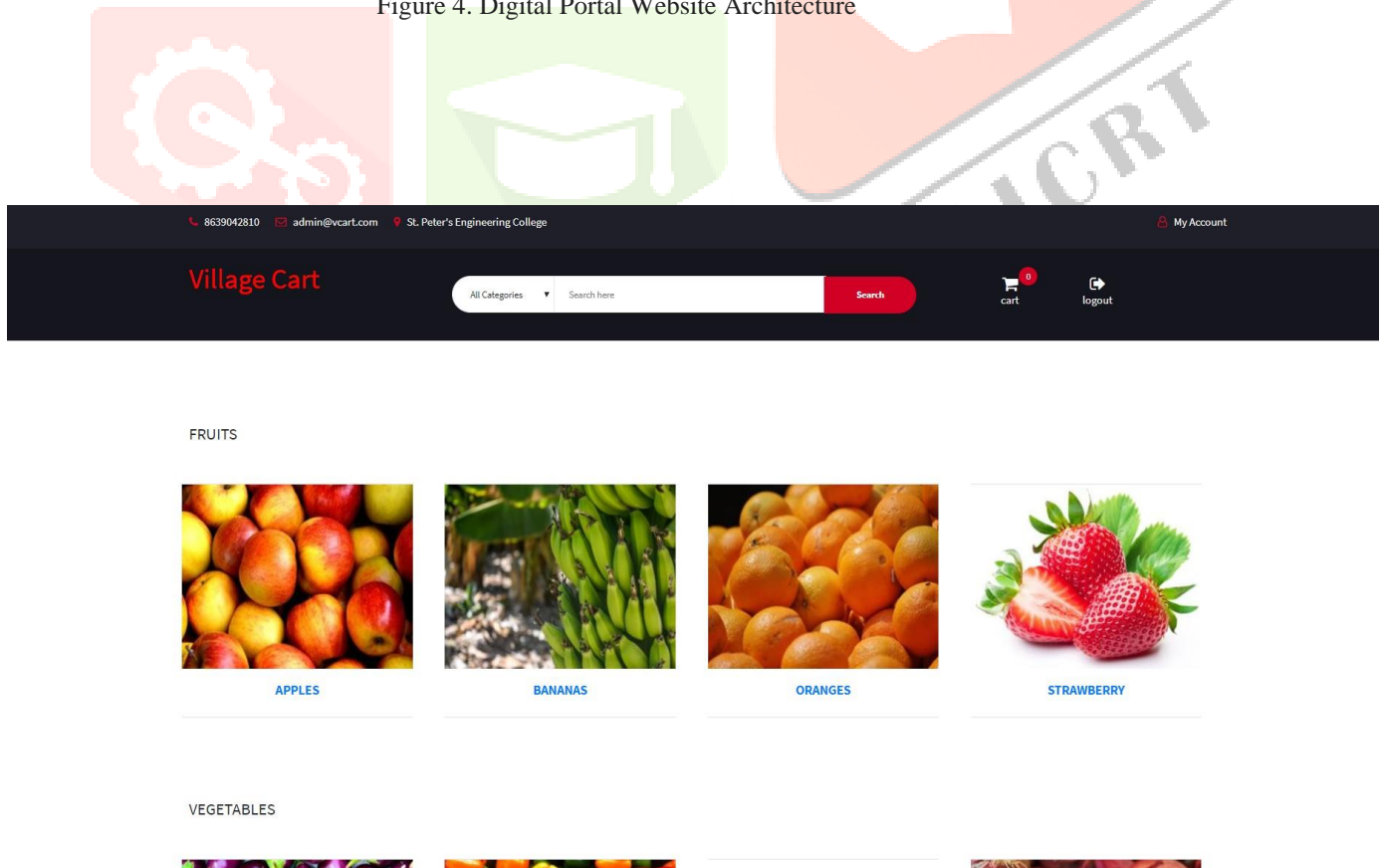Figure 4. Digital Portal Website Architecture
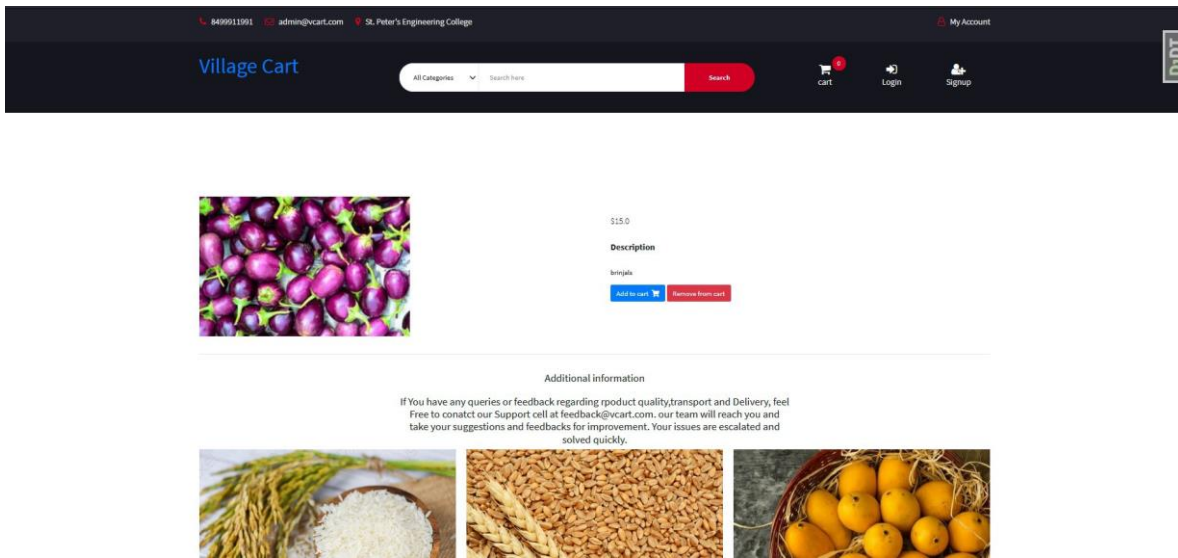

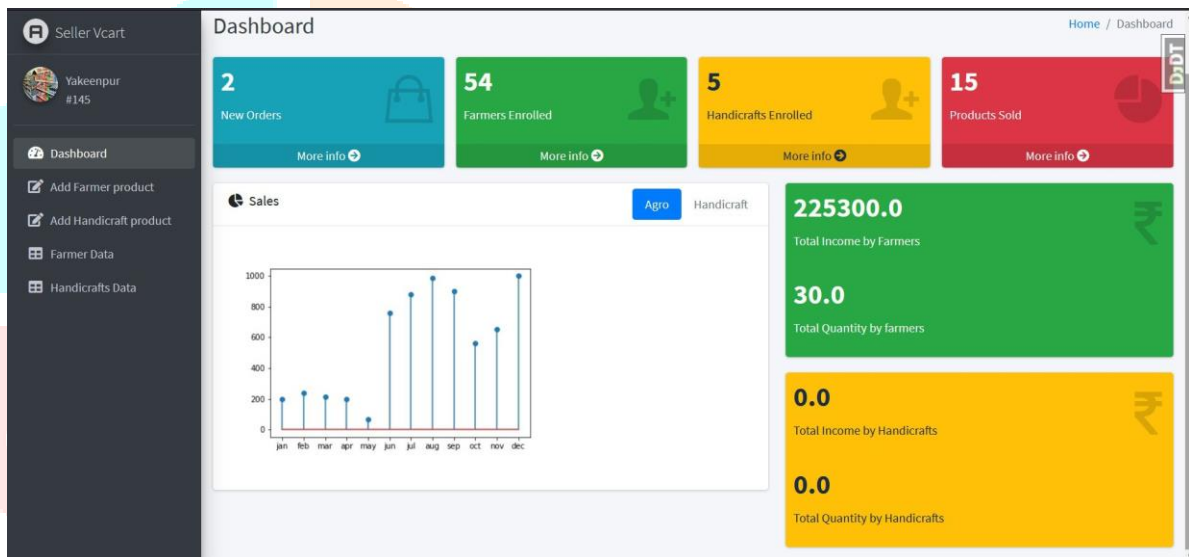Figure 5. Digital Portal Home Page

Figure 5. Product Page on Portal
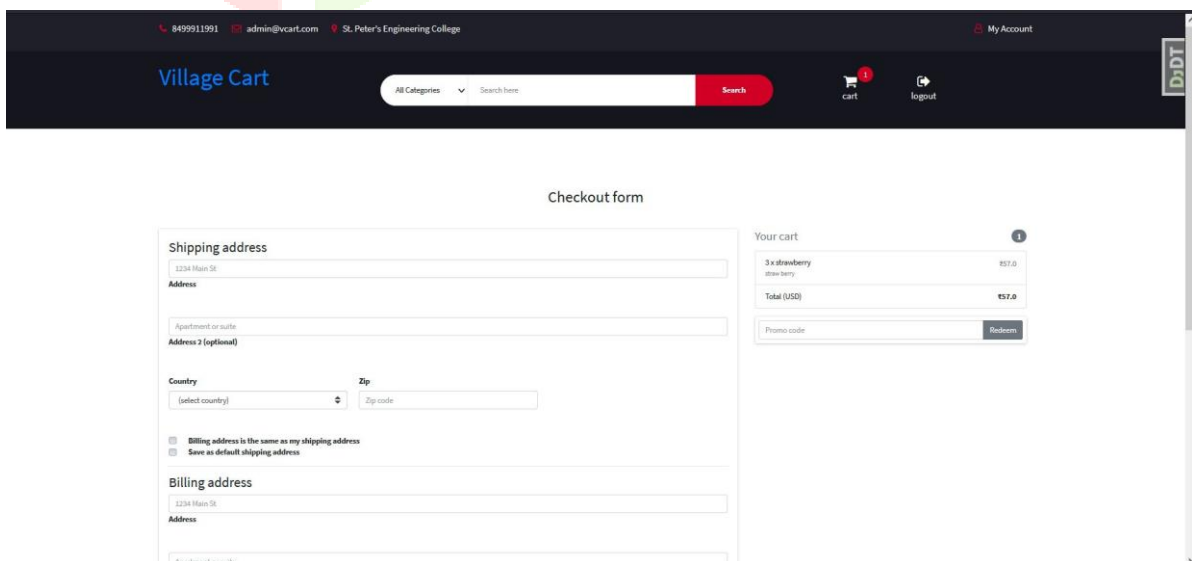

Figure 6. Co-operative Society (seller) Panel

Figure 7. Collecting Shipping Information From user

6. USE CASES

Digital portal can be used as a platform for Co-operative Societies to Sell their goods and also as a platform for wholesalers to buy goods in bulk, brief details about these use cases are given below.

Use case 1:*Wholesaler Buying Goods*:
In this case where a wholesaler registers as a buyer on portal with government ID and after approval he gets access to the product catalogue on the home page. From Home page he selects the product that he wants to buy in bulk and provides the Required Shipping details and makes payment through Secure payment gateway. Once the payment is received and Co-operative Society is notified,then order will be processed and shipping details will be shared with the seller.

Usecase2:*Co-Operative Society Registering as Seller*:
In this case, Initially a user registers with his credentials, once after activating his account, he will get access to the Co-operative Society application form for Digitalization.
Co-Operative Society details such as Society id and Chairman Details are collected and verified with the help of government and then approval will be done. Once co-operative society application is approved then seller login credentials will be sent to the society. After logging into the seller portal, co-operative society can add farmers data and data related to Agricultural produces and handicraft Products. Seller also gets access to the orders placed and orders in shipping, analytics of the sales and generation of reports etc.

7. SUMMARY

Once a society is applied to us for providing above mentioned services, we will thoroughly go through their application and verify the facts, then we will start providing our services to the Society. We register every Farmer/Artisan/small scale producer on our websitewith appropriate verification. We also follow the same criteria for registering buyers/retailer/mass buyers.

Once registering process is done, Buyers will order the required goods from E-commerce portal and provides delivery address and makes payment through our secure gateway. These payments will be settled into the seller's bank account directly or deposited into the Society account and then distributed equally. Once an order is placed then our technical team forwards the order details to warehouse maintenance team and logistics to pack the goods and ship them. Once goods are shipped tracking details will be provided to the buyer for further reference. Logistic team and Warehouse team take care of packing and exporting the goods.

Handicrafts are taken special care while exporting and packing, handlooms are given prior importance while exporting and every time details are confirmed twice before exported[10]. Workshops are conducted for unskilled persons to improve their skills. People with innovative ideas are supported and encouraged to establish industries.

Seller/Buyer/Society member can login in to the portal anytime and can see the details of current stock, sold stock, left over stock and Money transactions. This will maintain transparency and reduces extra costs on Sellers/farmers. Final outcome will be Increase in Village Income

8. CONCLUSION

Adopting and Implementing this system in villages through cooperative societies leads to Increase in Income. If village income raises, then it helps in developing the regions economy. This economic development brings positive impact and employment. If Village industry becomes more developed there will be job opportunities for the local village people, this will increase the wealth of the Village. These are the impacts of our model implementation. With the help of workshops we can increase the man force working in handicraft industry and as a result there is a chance of making Handicrafts industry to Survive. Workshops also helps to Upskill unemployed Youth in villages and make them ready for employment. Jobs can also be created in food Packaging and Processing Department.

Online Branding and Marketing helps The Farmers to reach more sellers throughout India and fetches good revenue and important thing is prices will be decided by farmers. Warehouse maintenance and Transport will be taken care of Co-Operative Society and they can outsource some jobs like warehouse security and

transportation in charge to the local youth. Ultimately this whole eco system will be built up and helps to increase farmers revenue, reduces the villages unemployment and raises share of handicraft industry in market and contributes to Country's GDP and Economy.

9. REFERENCES

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