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LOCAL E-COMMERCE PLATFORM FOR WASTE EXCHANGE IN VELLORE

J-Component Report submitted in partial fulfilment of the

requirements of the course

Lean Start-up Management [MGT 1022]

Submitted By

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Submitted To

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CERTIFICATE

This is to certify that the project work entitled **"Local E-Commerce Platform for Waste Exchange in Vellore"** that is being submitted for **Lean Start-up Management (MGT 1022)** is a record of Bonafide work done under my supervision. The contents of this Project work, in full or in parts, have neither been taken from any other source nor have been submitted for any other CAL course.

Place: Vellore

Date: 14 th April 2023

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ABSTRACT:

Our report presents the development of a local e-commerce platform for waste exchange in Vellore, India. The prototype platform allows individuals to buy and sell various types of waste, including household waste, plastic waste, and agricultural waste. This platform is aimed at reducing waste and promoting sustainable waste management practices in the local community. Through the platform, people who are in need of waste can easily purchase it, while individuals who have waste can sell it, providing a solution for waste management. The platform has the potential to contribute to a more sustainable future by promoting waste reduction and increasing awareness of the value of waste as a resource.

INTRODUCTION

In recent years, there has been a growing concern about the impact of waste on the environment. Governments and organisations around the world are taking measures to reduce the amount of waste that goes to landfills, but more can still be done. One way to address this issue is through the use of e-commerce platforms that facilitate waste exchange. These platforms enable businesses and individuals to buy, sell, and exchange waste products and materials, thereby reducing waste disposal costs and promoting sustainability.

Local e-commerce platforms for waste exchange are particularly effective in facilitating waste exchange among local businesses and communities. These platforms provide a marketplace for waste materials that may be considered valuable resources for other businesses or individuals. By connecting waste generators with waste users, local e-commerce platforms for waste exchange create a circular economy that benefits both the environment and the economy.

The success of local e-commerce platforms for waste exchange depends on the active participation of both waste generators and waste users. Waste generators need to be aware of the potential value of their waste materials and be willing to participate in the exchange process. Waste users need to have a clear understanding of their waste needs and be able to effectively use the waste materials they acquire. With the right incentives and support, local e-commerce platforms for waste exchange can play a significant role in promoting sustainability and reducing waste in local communities.

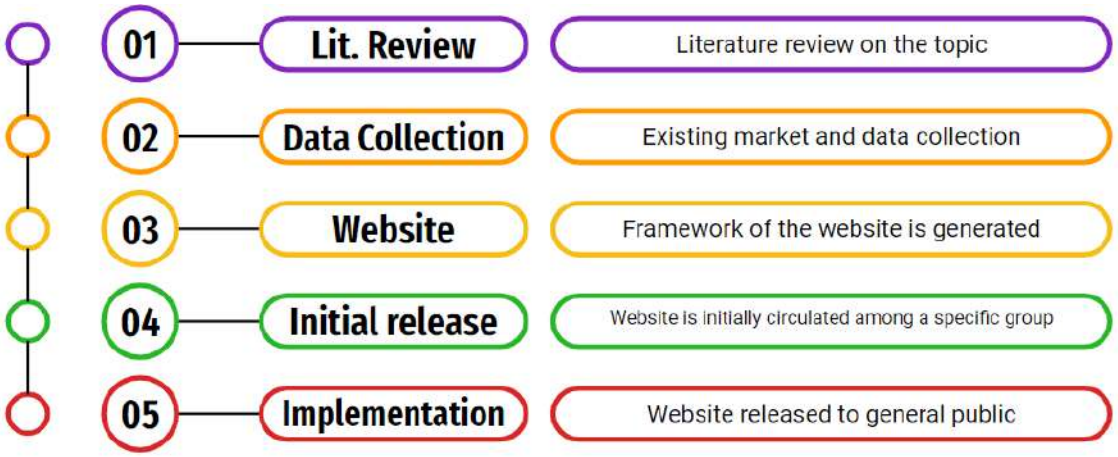
Expanding on the potential benefits of waste exchange platforms, it is essential to note that they can not only reduce businesses' waste disposal costs, but also generate additional revenue streams by selling their waste materials. In addition, waste exchange platforms offer businesses the chance to acquire materials at a reduced price, thereby reducing their operating expenses and boosting their profitability. This is especially advantageous for small and medium-sized businesses that may lack the means to acquire materials from regular suppliers.

In addition, waste exchange platforms have the potential to establish a network of businesses committed to sustainability and environmental responsibility. These platforms encourage businesses to implement more sustainable practices and reduce their environmental impact by facilitating the exchange of waste materials. This can result in a positive ripple effect, as businesses that participate in waste exchange may implement additional sustainable practices, such as reducing energy consumption, increasing the use of renewable resources, and reducing their carbon footprint.

OBJECTIVES

- To collect the information about the waste exchange needs, data specificity and collection methods
- To deliver equal or super performance compared to other traditional techniques.
- To Provide investors, companies, and customers with the promise of increased returns, reduced costs, and lower prices
- Fostering economic growth and job creation by promoting local businesses that participate in the waste exchange platform.

METHODOLOGY:



Literature review

According to Wang et al. (2021), local e-commerce platforms for waste exchange can improve waste management practices by facilitating the exchange of waste materials between individuals and businesses. The authors note that these platforms can incentivize waste reduction and promote resource recovery by creating a market for waste materials. Additionally, Wang et al. (2021) suggest that local e-commerce platforms for waste exchange can promote circular economy principles by promoting the reuse and recycling of waste materials.

Another study by Mazzarella et al. (2021) found that local e-commerce platforms for waste exchange can improve waste management practices by promoting waste prevention and reduction. The authors note that these platforms can incentivize the reduction of waste by providing financial incentives for waste reduction and creating a network of individuals and businesses that share resources. Additionally, Mazzarella et al. (2021) suggest that local e-commerce platforms for waste exchange can improve environmental outcomes by reducing the amount of waste that ends up in landfills.

Despite the potential benefits of local e-commerce platforms for waste exchange, several challenges need to be addressed to ensure their effectiveness. According to Zhang et al. (2021), one of the main challenges is the lack of standardization in waste categorization and labeling. The authors note that without standardized labeling, it can be difficult to identify the quality and composition of waste materials, which can make it challenging for buyers and sellers to negotiate fair prices.

Another challenge identified by Chen et al. (2020) is the limited availability of waste collection and transportation services. The authors note that many waste materials require specialized handling and transportation, which can be expensive and time-consuming. Additionally, waste collection and transportation services may not be available in all areas, making it difficult for individuals and businesses to participate in waste exchange programs.

A study by Li et al. (2021) examined the environmental impact of a local e-commerce platform for waste exchange in China. The authors found that the platform had a positive impact on waste reduction, recycling, and resource recovery, which contributed to

environmental sustainability. The study also found that the platform created new revenue streams for waste collectors and recyclers, leading to economic benefits.

Another study by Zhang et al. (2020) explored the economic feasibility of a local e-commerce platform for waste exchange in China. The authors found that the platform had the potential to generate significant economic benefits by creating new jobs, increasing the efficiency of waste collection and recycling, and reducing waste disposal costs. The study also identified the need for supportive policies and incentives to promote the widespread adoption of these platforms.

BASIC REQUIREMENTS FOR WASTE EXCHANGE PLATFORM:

User Management: A system for managing and storing user profiles, including information on waste generators, waste traders, and waste processors.

Waste Listing and Trading: A platform for waste generators to list their waste materials for sale, and for waste traders and processors to search for and purchase waste materials.

Payment Processing: A secure and reliable payment processing system for transactions between waste generators and traders/processors.

Inventory Management: A system for managing the inventory of waste materials, including the tracking of waste transactions and payments.

Logistics Management: A system for managing the logistics of waste transportation and delivery, including the scheduling of waste pickups and deliveries.

Compliance Management: A system for managing compliance with relevant waste management regulations, including the tracking of waste materials and their disposal.

Reporting and Analytics:

A system for generating reports and analyzing the performance of the waste exchange platform, including metrics such as waste volume, revenue, and user engagement.

User Interaction: A platform for users to interact with each other, including messaging, feedback,and dispute resolution.

Security: Robust security measures to protect user information and transactions, including datam encryption, authentication, and access controls.

Scalability: A platform that can scale to accommodate increasing numbers of users and transactions as the business grows.

DATA COLLECTION:

- **Gopi Engineering Works (Tanning Machinery)** 2/73, MC Road, Near Surya Agencies Madanur, Vellore-635804
  Phone: (0416) 256237

- **Pari Engineering Works (Fibre Manufacturer)** 159, SIDCO Industrial Estate, Near Central Excise Duty Office, Ranipet, Vellore-632403
  Phone: (0416) 244365

- **Altec Engineers and Services (Electrical LV/MV Switch Boards Manufacturers)** 86-A, SIDCO Industrial Estate, Near NTTF Factory, Gandhi Nagar, Vellore-632006
  Phone: (0416) 2244641

- **Sri Lakshmi Poly packing (Polythene Bags)** G-2, Industrial Estate, Near NTTF Company, Gandhi Nagar, Vellore-632006
  Phone: (0416) 2242754

- **Ramya Traders (Paper Bags)** 27/74, 3rd Mettu Street, Behind Crown Theatre, Thottapalayam, Vellore-632004
  Phone: (0416) 2221410

VELLORE : CURRENT SCENARIO:

Waste generated : 230 metric tons of solid waste per day (biodegradable - 160TPD) [published by TNPCB]

124380 households, 46 large scale industries and 250 small and medium scale industries [published by MSME]

- ➔ 57 no. micro composting centres - 105 TPD
- ➔ Biomethanation plant - 3TPD
- ➔ 20 old corrugated containers
- ➔ Combustible waste transported to UltraTech cement - 10 TPD

DATA COLLECTION:

S.No.	Waste type	Origins	Industry that can reuse the waste
1	Bottles (plastic, glass, cans)	Household, Commercial, Littering	Packaging, Construction,Textile, Automobile, Furniture
2	LDPE (low density polyethylene)	Packaging, Manufacturing, Agriculture, Municipality solid waste, Construction	Plastic manufacturing, Energy generating, 3D printing, Textile, Construction, Agriculture
3	HDPE (high density polyethylene)	Packaging, Consumer goods, Industrial, Construction	Automotive, Healthcare, Electrical and electronics, Agriculture, Furniture
4	Textile	Household, Market (unsold/fast fashion)	Donation, Mattress, Cleaning, Insulation, Textile, Arts and crafts

S.No.	Waste type	Origins	Industry that can reuse the waste
5	Vegetable and food waste	Household, Grocery stores, Restaurants and good services, Agriculture and farming	Agricultural , Animal feed industry, Bioenergy, chemical, fertilizer

6	Paper	Offices and businesses, packaging, household waste, manufacturing, publishing industry	Art and craft, energy industry, construction, paper manufacturing industry, agricultural
7	Metal	Packaging, Household, Automotive, Electronic, Construction	Construction, Automotive, Packaging, Art and jewellry, Manufacturing
8	Fly ash	Coal-fired power plants	Construction industry to produce concrete

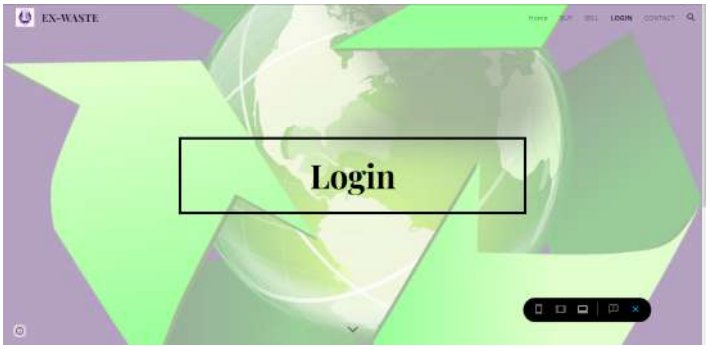
MARKETING STRATEGY:

- ➔ **Advertising** on social media platforms like Facebook, Instagram, Twitter etc.
- ➔ Sending **Mails** using the 'Refer and Earn' technique to make them forward it to their friends.
- ➔ **Offline promotion** by creating business cards and brochures, Sending postcards.
- ➔ Creating a **blog/Website** by publishing content that our audience wants to read.
- ➔ **Hosting Events** by sponsoring a local event can help the startup on our prospects' radar.
- ➔ Influence Marketing by gaining huge exposure from **influencers** for our startup.

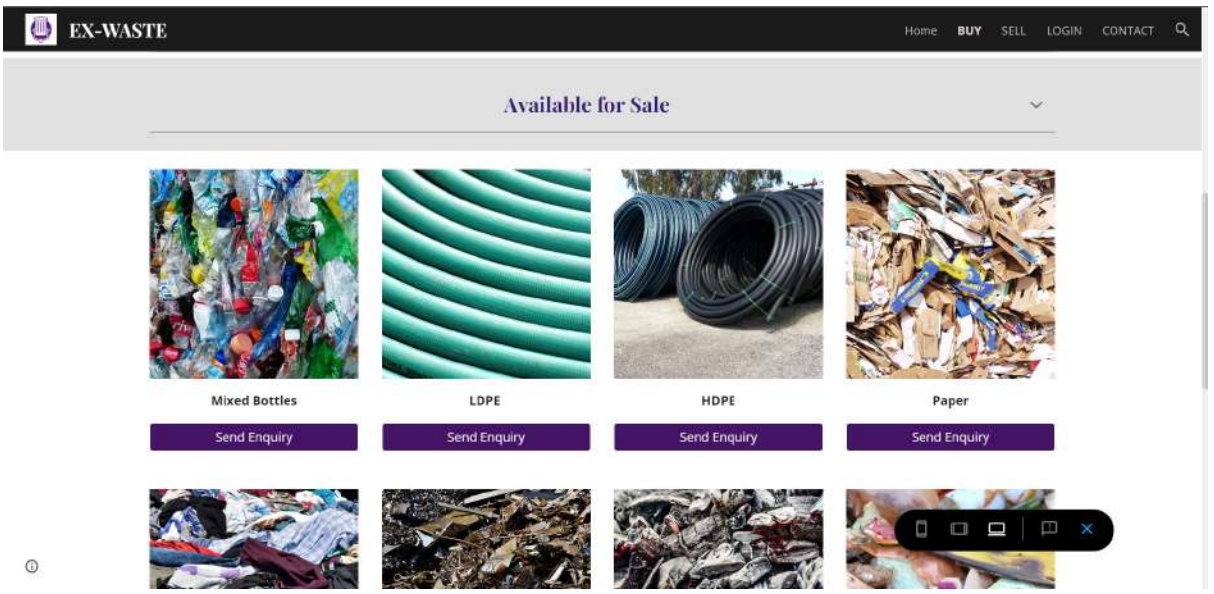
BASIC WEBSITE STRUCTURE:

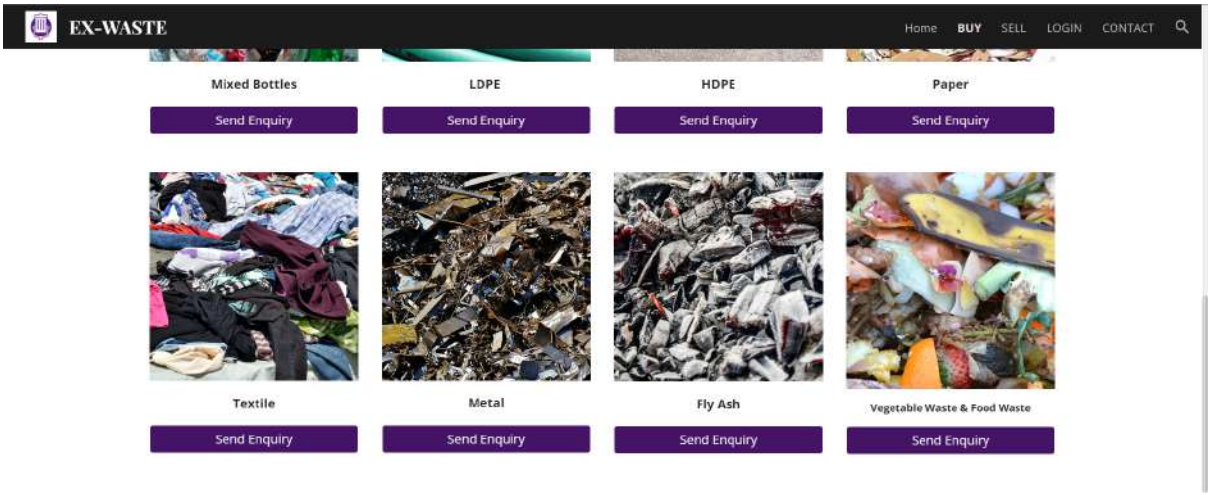
1. **HOMEPAGE**

2. LOGIN PAGE



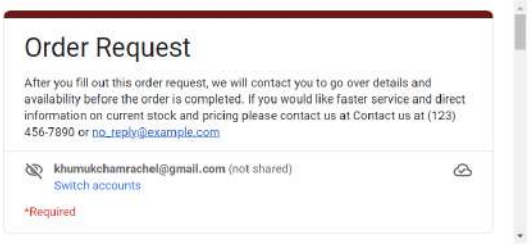
3. ORDER PAGE

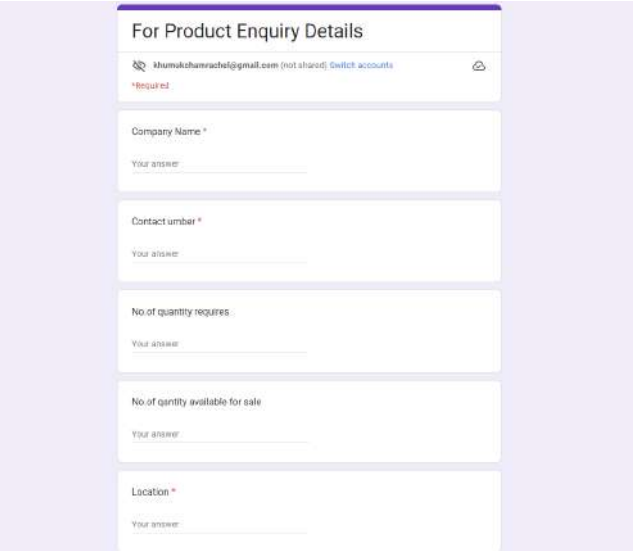




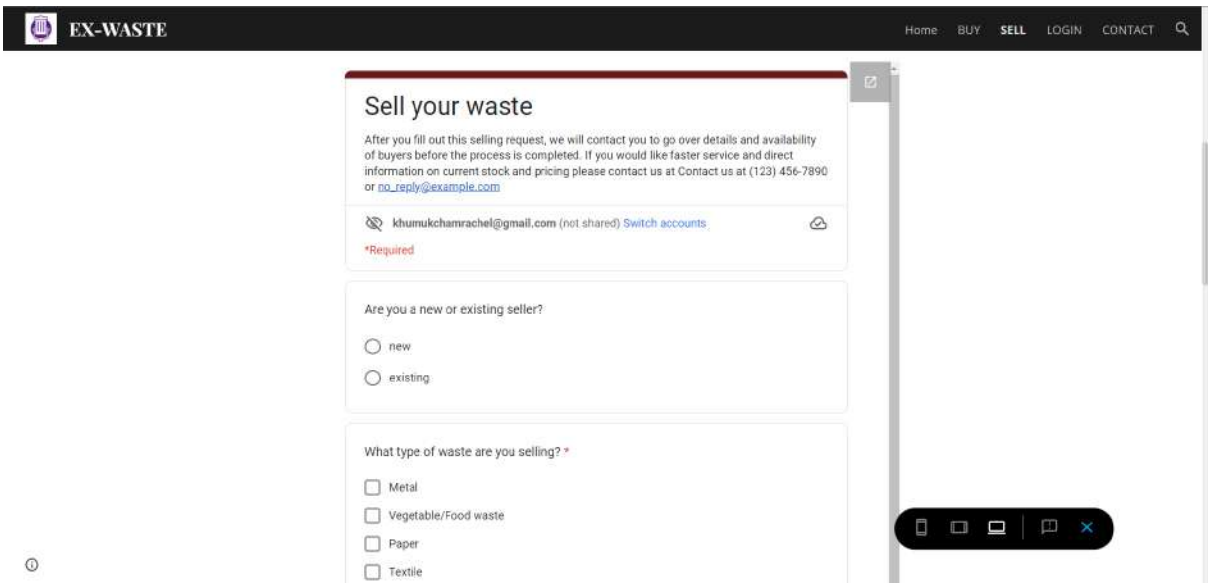
Requests:

For any requests kindly fill out the form given below.

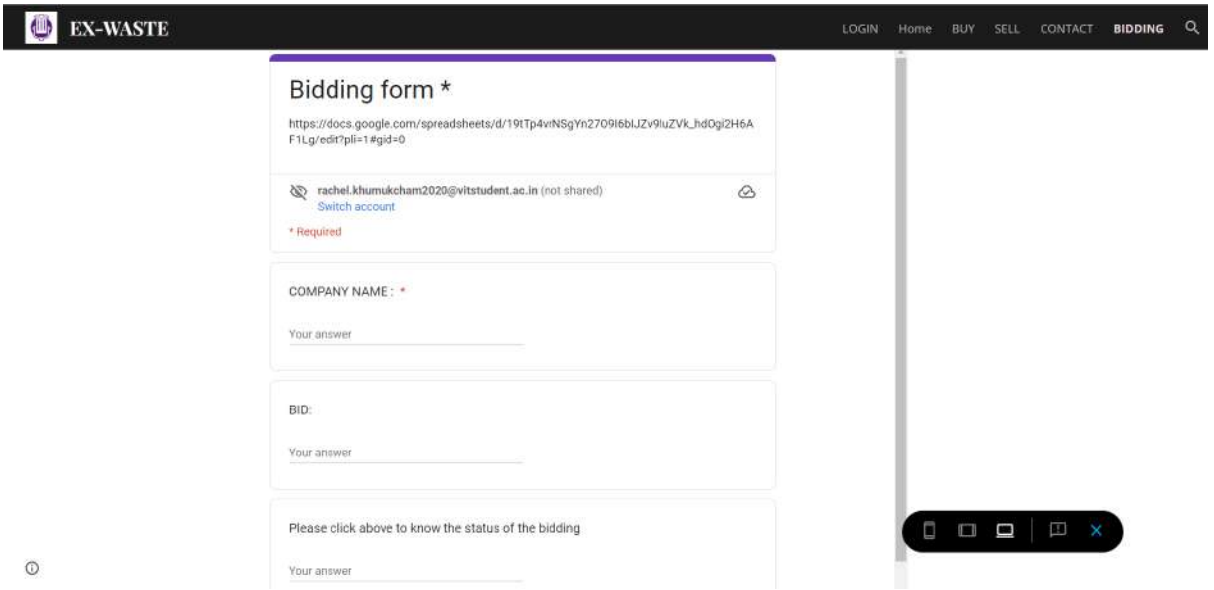




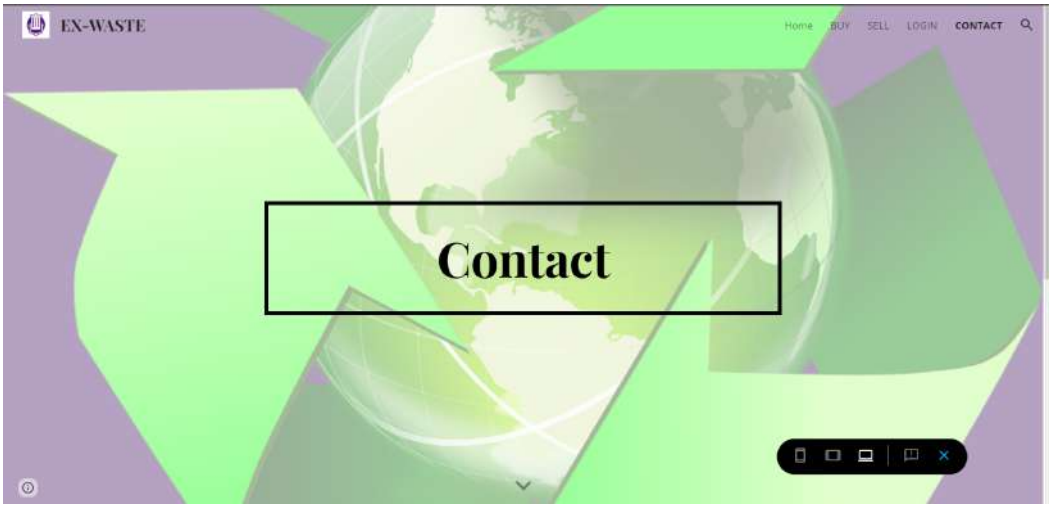
4. SELLING PAGE

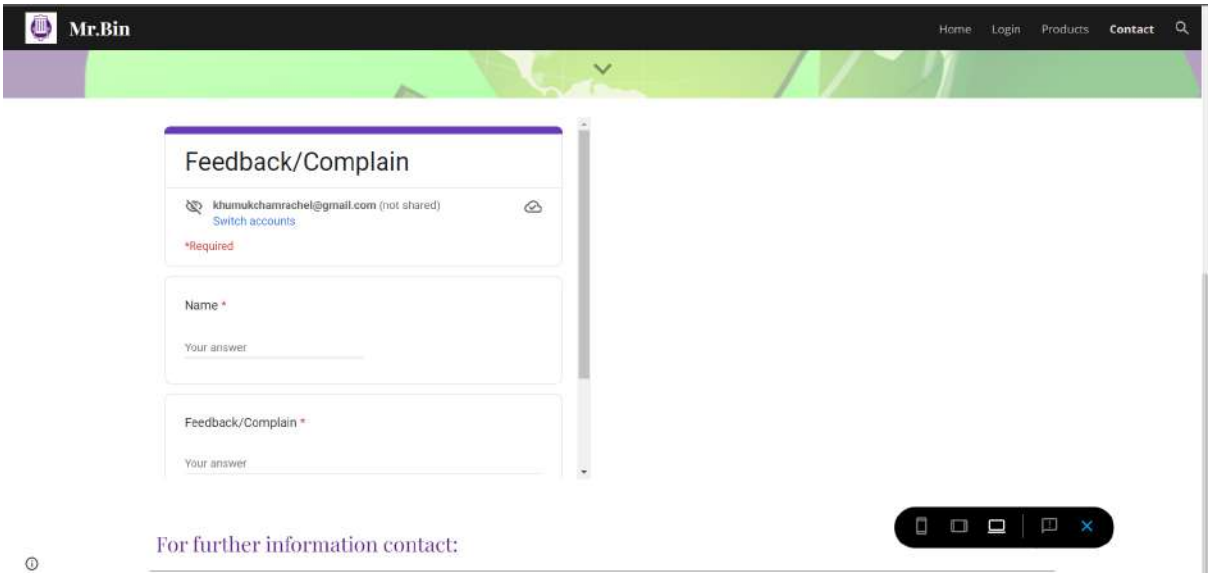


5. BIDDING PAGE



6. FEEDBACK

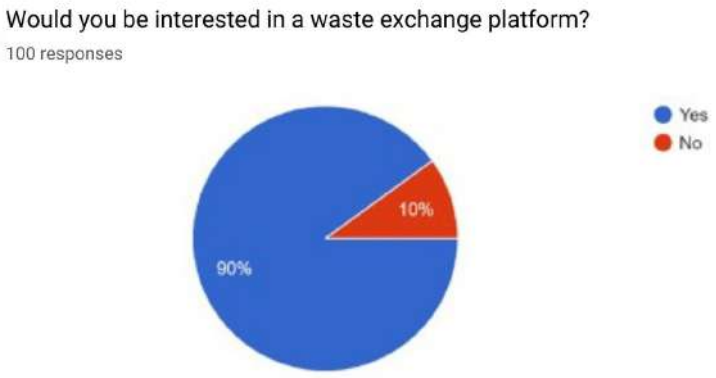

EX-WASTE
Home
BUY
SELL
LOGIN
CONTACT
Contact


Mr.Bin
Home
Login
Products
Contact
Feedback/Complain
khumukchamrachel@gmail.com (not shared)
Switch accounts
*Required
Name *
Your answer
Feedback/Complain *
Your answer
For further information contact:

SURVEY RESULTS:

Around **100 responses** were recorded from the feedback form circulated to various group of people and the following were the results found:

Name	Feedback/Complain
PAVITHRA P	It was a user interface website
Rajeev (20BBT0035)	UI is easy to navigate and use
Suhani (21BBS0245)	Request and Order form seem to overlap
Dipika	Types of wastes mentioned are plentiful
Deepthi (21MIS2098)	UI needs a map for better visibility of location of wastes
Arjun	Please provide contact info of HDPE vendors
Ritika	Can we sell household wastes
Rahul Ranjan	Please provide more in-depth info about the waste
Jagruti (21MID0712)	UX is decent, could be improved
Simran	There is no guarantee, no verification point. We can get wrong or un-segregated product with no one taking responsibility.
Vijay	How can I become a vendor
Aditya sharma	Slow and un-responsive website
Ishaan (20BIT0941)	Login page needs more options
Amish	No registration options if we are a returning customers. I want to make an account.
Nicholas	Website can have smoother interface
Deepriya	Better interface and orders can be taken within the site itself instead of using google forms for everything
Arpit Singh	Provide pick up and drop off services
Kris (20BCE0172)	Bidding system can be dynamic instead of customers waiting for response.
Venkata Praveen	Legal paperwork verification and data security issues not addressed in the website
Nandikaa	Please PM me for other vendors



FUTURE PLANS:

- ➔ Further Changes from **user response** and **feedback**
- ➔ **GIS Map addition** to the website.
- ➔ **Monetization** : generating income from our app potentially through -
    - Sponsorships
    - Advertisements
    - Collaborating with government agencies
    - Subscription
- ➔ **Transportation services :** providing services for transfer of goods from seller to buyer.
    - Pickup and drop off
    - Shortest path reducing vehicle fuel consumption to collect waste
    - Warehouse facilities

MAJOR CHALLENGES OF E-COMMERCE WEBSITE :

It is challenging to match customer expectations in an era where experience matters the most, and tech giants like Amazon take the online buying process to the proverbial ‘next level’ with anticipatory shipping methods.Competing with these giants and matching the ever-evolving customer demands is a huge challenge for retailers today.

Agility Challenge;

Agility as the capability of a business to introduce advancements, develop and deploy digital content, and respond to seasonal changes rapidly. Many companies find it difficult to move or change quickly to adapt to customers’ needs. This is because they cannot integrate new technologies efficiently with their existing system, and, as a result, penetration into the market gets more complicated.

Being Consistent:

Consistency is an essential element when curating a successful website.However, analyzing and understanding customer interactions across all touchpoints and using them to build a consistent and smooth customer experience is one of the significant eCommerce challenges for retailers.

Data Security:

Breach of credit and debit card information has become commonplace, and such lapses directly impact a consumer's trust. Phishing is another threat hackers pose as a company and request sensitive information from their customers. Several users are increasingly concerned about the ability of eCommerce websites to protect their identity and transaction details effectively.

Technology Partnerships:

Many businesses gravitate to choosing a partner based on costs without first setting the right expectations or understanding their work scope. These gaps lead to a disastrous collaboration and end product. But access to a vast pool of talent and technology, outsourcing can prove highly beneficial if done right.

MINIMUM VIABLE PRODUCT:

The MVP is the minimum viable product needed for the success of the eCommerce project. The goal of an MVP is to deliver the new features necessary for a working and testable eCommerce website in the shortest amount of time.The development of an MVP for an eCommerce website is about taking a minimum set of functionality (one or two features) that are viable (in other words, essential, and can work for your idea) and implementing these features into a product.

By focusing on the minimum set of features required for launch, you can avoid spending time and resources on unnecessary features that may not be critical to your product's success.

By focusing on the minimum set of features required to launch, you can quickly build and launch your online store, allowing you to start generating revenue and testing your product in the market.

LEGAL REQUIREMENTS:

→ *Before Scaling Up*

Business Registration:

The startup would need to register as a legal entity under the Indian Companies Act, 2013. The owners can choose to register the business as a Private Limited Company or a Limited Liability Partnership (LLP).

Licences and Permits:

The startup would need to obtain necessary licences and permits from the government authorities such as the Pollution Control Board, the Industrial Development Authority, and the Ministry of Environment and Forests, to operate as a waste exchange startup.

Tax Registrations:

The startup would need to register for various taxes such as Goods and Services Tax (GST), Professional Tax, and Income Tax, depending on the nature of the business and the turnover.

Website Compliance:

The website would need to be compliant with the Information Technology (IT) Act, 2000, which governs the use of electronic records and digital signatures.

→ *After Scaling Up*

Labour Laws Compliance:

The startup would need to comply with various labour laws such as the Minimum Wages Act, the Employees' Provident Funds and Miscellaneous Provisions Act, and the Employees' State Insurance Act, as they hire employees.

Environmental Compliance:

As the startup sets up warehouses and trucks for transportation, they would need to comply with environmental laws and obtain necessary permits from the Pollution Control Board.

Intellectual Property Rights:

The startup would need to protect their brand name, logo, and website content by registering for trademarks and copyrights.

Contractual Agreements:

The startup would need to draft and execute various contractual agreements such as Vendor Agreements, Service Level Agreements, and Non-Disclosure Agreements to protect their business interests.

SWOT ANALYSIS:

Unique concept: The e-commerce platform for waste exchange is a unique concept that has the potential to revolutionize waste management practices in Vellore.

Environmental benefits: The platform has the potential to significantly reduce waste by promoting recycling and upcycling, which can lead to environmental benefits in the long run.

Convenience: The platform provides a convenient way for people to dispose of their waste while also earning money from it.

Low cost: The platform has low overhead costs, making it a cost-effective way to manage waste.

Weaknesses:

Limited awareness: There may be limited awareness of the platform among the general public, which could limit its adoption.

Limited reach: The platform may have limited reach in terms of the number of people it can reach, especially those who do not have access to the internet.

Reliance on sellers: The platform's success is dependent on the availability of waste sellers.

Opportunities:

Increased awareness: There is an opportunity to increase awareness of the platform through marketing and outreach efforts.

Collaboration with local governments: Collaboration with local governments can help promote the platform and increase its reach.

Expansion to other regions: The platform can be expanded to other regions beyond Vellore, which could lead to increased adoption.

Threats:

Competition: The platform may face competition from other waste management solutions in the market.

Regulation: The platform may face regulatory challenges related to waste management laws and regulations.

Technical difficulties: The platform may face technical difficulties such as system malfunctions, which could disrupt its operations.

CONCLUSION :

In conclusion, the development of a local e-commerce waste exchange platform in Vellore has the potential to revolutionize waste management practices in the region. The platform offers a unique solution that not only provides convenience to waste sellers but also offers environmental benefits by promoting recycling and upcycling. The platform's success is dependent on increasing awareness, collaborations with local governments, and expansion to other regions beyond Vellore. Moreover, future plans involve mapping out the companies that the platform can tie-up with to sell the waste and gain maximum profit. The platform has the potential to benefit both the environment and the local economy, making it a promising solution for sustainable waste management practices.

INTERFACE OF OUR E-COMMERCE WEBSITE:

Access Link of our Website :https://sites.google.com/d/1U4AT58eiFvTxtvwxt8aHxBaGP6GvHVvE/p/14tKoVrmTkF3WG__meWtbGVA2p06EPMu0/edit

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