CTS Prodigi

HACKATHON

Idea submission

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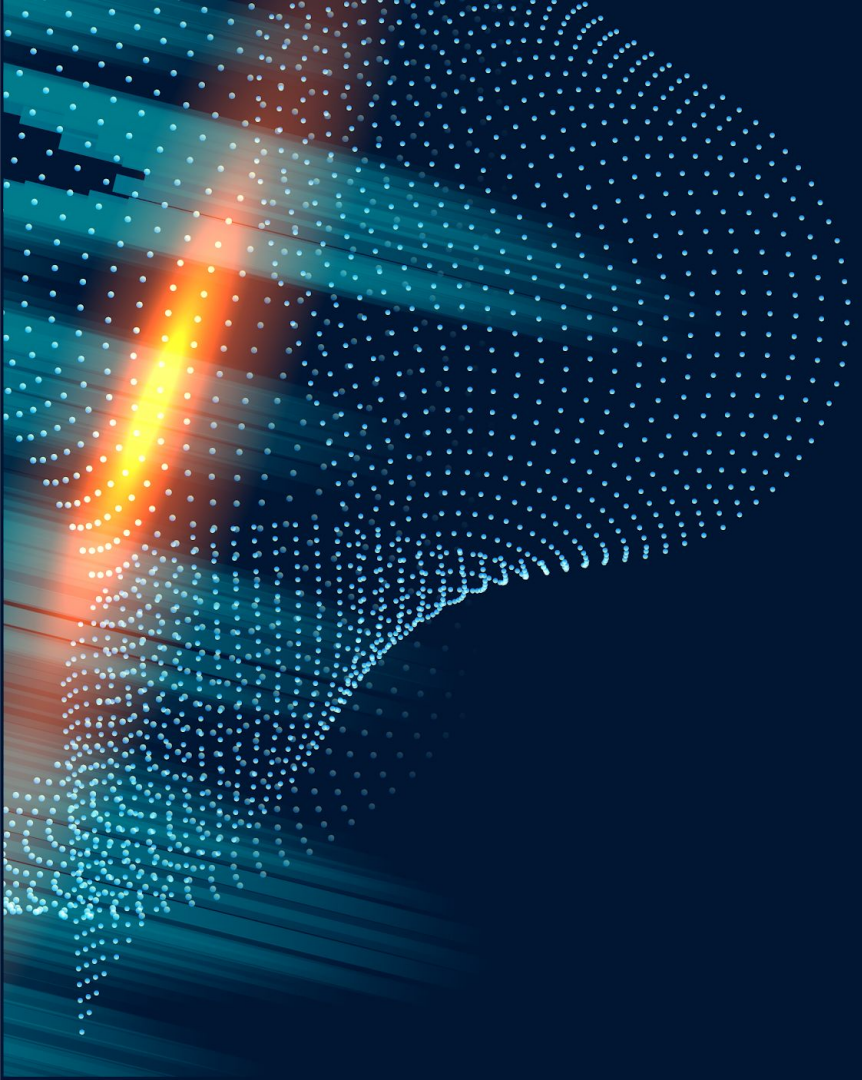
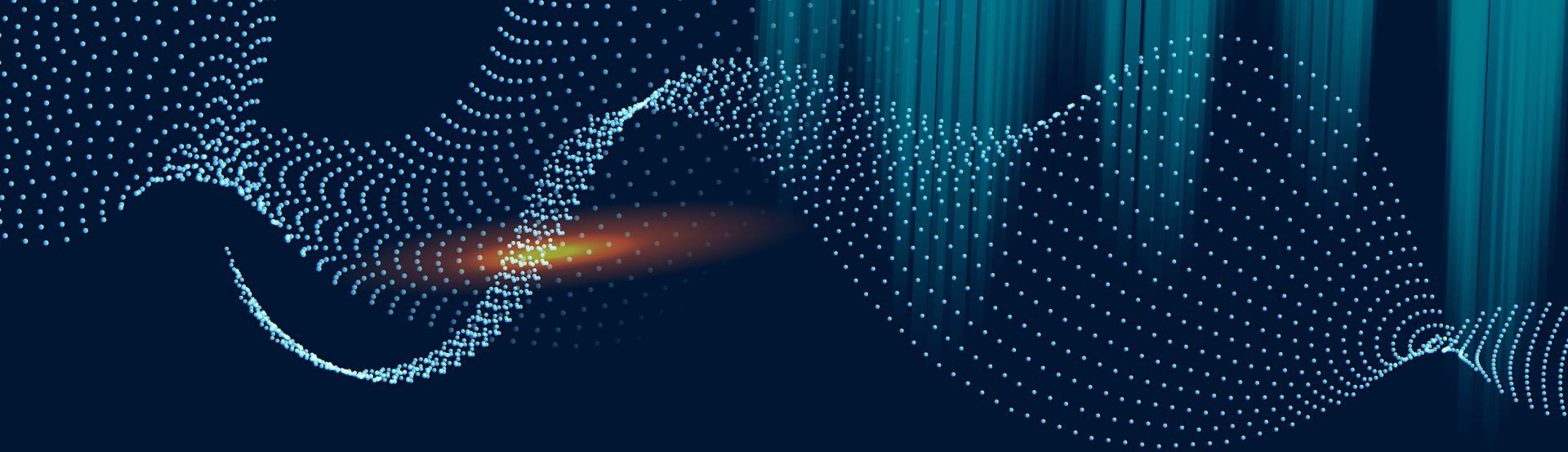


Problem Statement

Supply chain event prediction and visibility:

How can you provide visibility and predictive capabilities in the supply chain, in order to make the right decisions?



01 OBJECTIVE

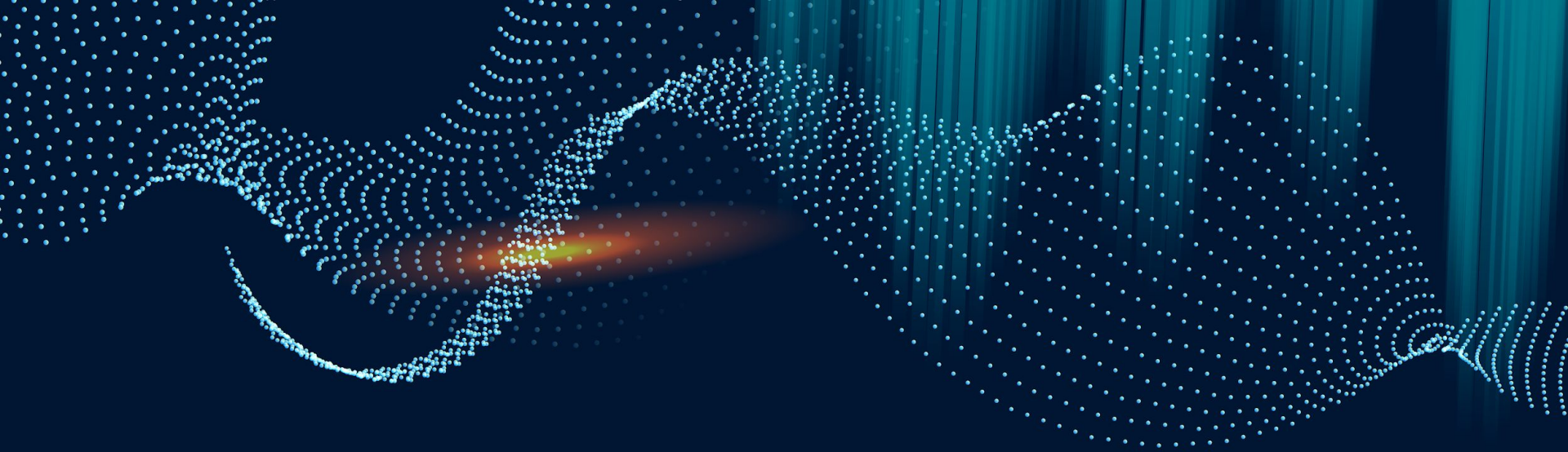
Our motive in order to solve the problem

Creating a waste management supply chain

Our objective is to create a web app to create an interface between the sellers of the waste produced in the large factories, to the buyers who use that waste as their raw material for production. On our web app organizations can list their waste by quantity, price, and location of their company, for selling. Also, we will predict the future wastes that will be produced by those companies. Buyers get the best recommendations for their selected raw material based on price, quality reviews, and location(for travel expenses). Our objective also focuses on our environment-conscious efforts to better use waste resources to minimize its impact on health and the ecosystem.

WHY?

We have taken this problem because we are concerned about the amount of global waste produced in the factories in bulk during the production of goods. Mismanagement of this waste can lead to a variety of issues, including air emissions, health effects, soil contamination, and so on. We want to find the solution to this problem so that we can save the foundation of all civilization and sustain our economies. We developed a solution in which we would establish a supply chain between the manufacturers who produce recyclable waste and the consumers who require this waste and can use it to generate new products, which will ultimately help us achieve our goal.



02 OUR SOLUTION

Our stepwise complete solution we provide to the problem

Proposed Solution

By launching our website, which enables companies to disclose the waste they produce together with details like quantity, price, etc., we hope to eliminate this waste.

Companies in need of raw materials can purchase their goods from our website, where they can get the finest recommendations based on our predictions that take into account their specific needs.
For example, Manufacturers can save data on the recyclable waste(Paper, Rubber, etc), generated in their company on the admin portal, and consumers can use our website to purchase that waste material from our best recommendations, while we estimate the garbage that will be generated soon.
Our solution can be explained by the following phases:

1. Buyer's phase
2. Seller's phase
3. Prediction of future waste
4. Best buyer recommendation
5. Global waste reduction

Step-wise Solution

1. ***The Seller's Phase***
   - The industries sign up for our website for the first time with valid information and verification.
   - They can input and update information regarding the type (material) and quantity of waste goods at their admin panel.
   - On their dashboard, they can view the data that we predicted for the future after analysing the historical and current data.
   - Additionally, they will have the ability to accept or reject bookings made by potential buyers.

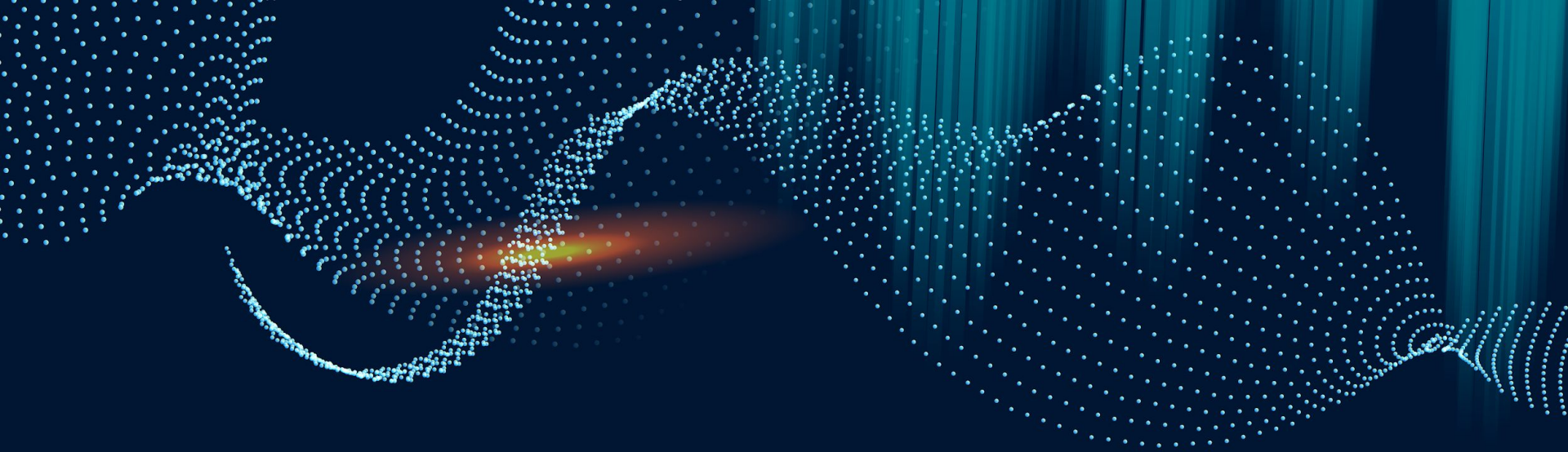
2. ***The Buyer's Phase***
   - Companies looking for raw materials can obtain a list of various materials and their costs within several categories at the buying panel.
   - They can filter the list according to material, cost, quantity, and location.
   - Additionally, they can see the reviews regarding the product's vendor, its data, and its future goals.
   - Users can choose the company they liked the most and book the materials they desire using our Best recommendations function.

Step-wise Solution

3. ***Prediction of future waste***
   - The selling companies can view future predictions generated by us on our website based on their past and present waste material data, taking into account various elements including seasonal and economic variations.
   - We use LSTM, linear regression, and sentimental analysis to create these forecasts.
   - After every booking, the sellers can update their data, and the buyers can utilise this prediction as a deciding factor when selecting the company.

4. ***The Recommendations feature***
   - On our website, we provide buyers with the best recommendations for them on the basis of their preferences like nearest location of company, feasible prices of waste materials and reviews given by other buyers

5. ***Our contribution to global waste reduction***
   - We aim to lower the amount of waste produced globally through our website. It is a simple but effective approach to reuse industrial wastes rather than throwing them away. At the same time, it is advantageous for buyers to purchase their raw materials from here since they do so at a fair price and help reduce global trash.



03 BACKGROUND WORK

Our background work and analysis for the idea

Analysis

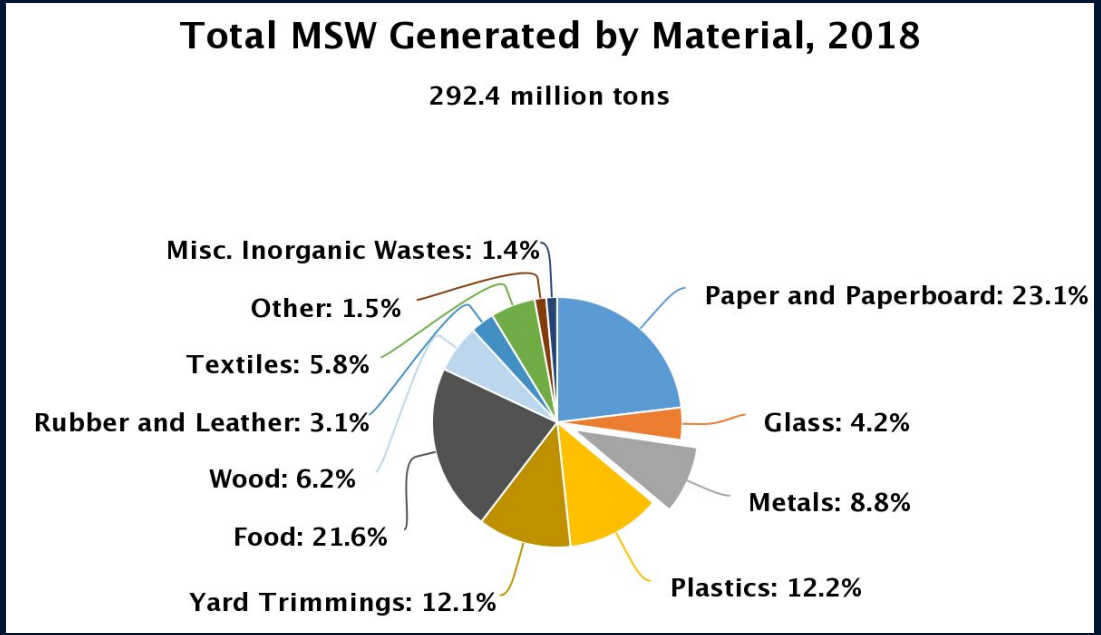
We gathered the following subsequent quantitative records from various sources because, given the current conditions, our method would help to provide visibility and predictive capabilities in the supply chain, as well as being extremely beneficial to the environment.

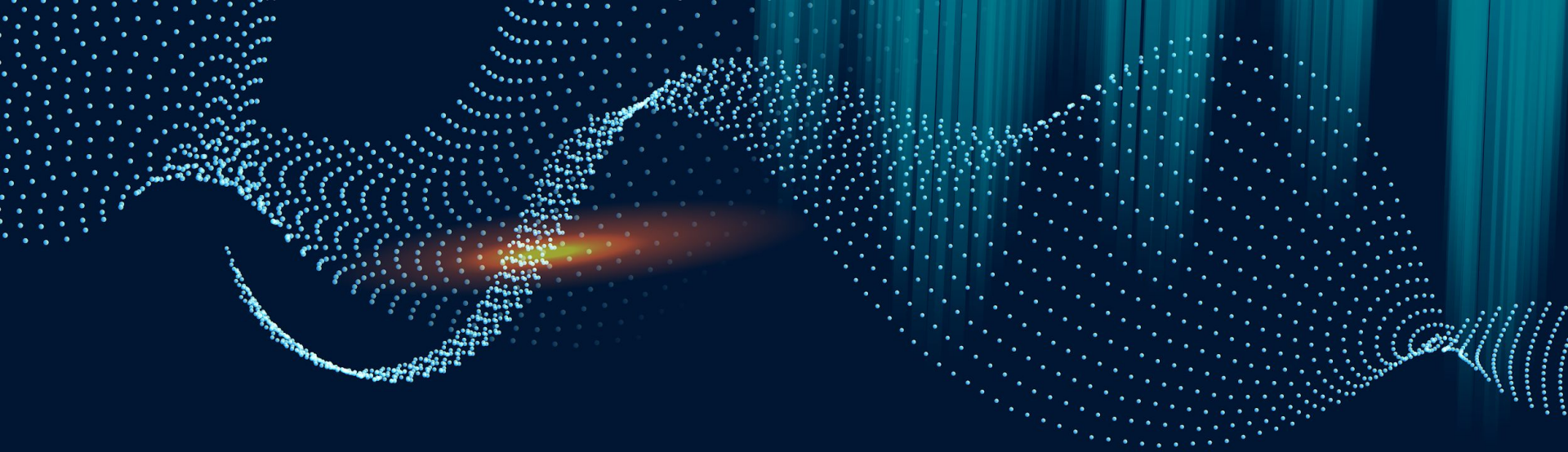
- We dispose of a whopping 2.12 billion tonnes of waste annually, a large portion of which comes from industries. Part of the reason for this astounding quantity of waste is that we discard 99 percent of the items we buy within six months.
- Our nation generates approximately 62 million tons of waste with an average annual growth rate of 4%.
- India is currently planning to construct about 100 new waste incineration plants, which have the potential to produce an estimated 3 GW of energy from waste in 2050.
- The Central Pollution Control Board (CPCB) Report (2019-20) had stated that 3.5 million metric tonnes of plastic waste are generated in India annually.
- The recycling rate remains significantly lower than what could have been attained.
    - Paper has a rate of slightly less than 30% .
    - Plastics have a rate of about 60% .
    - Metal has a rate of 20% to 25% .
- It is projected that trash management could be a $15 billion industry in India.
- Waste components that can be recycled account for 25% of all waste produced in India.

Analysis

- Dell, Adidas, Nike, Patagonia, Garnier, WeWood and more are using recycled materials to manufacture their products for sustainability-minded consumers.
- for every 4 hours of production, the company is throwing material, energy and equipment time in the bin.
- Managers of American Airlines and Coca-Cola have made buying recycled products part of their overall business strategies.
- Mountains of recyclable material remain in storage while recyclers wait for the price to rise to a level that allows them to cover the cost of collection, transportation, processing, packaging, and storage—and to make a reasonable profit
- The computer division of American Airlines, for instance, has saved over $100,000 by converting to 100% recycled paper. Printing its annual report on recycled paper has saved American another $33,000.
- Between 2019 and 2020, there was a 5.7% overall decrease in plastics recovered for recycling in the U.S. That is the equivalent of 290 million pounds.
- Several entrepreneurs are focusing their energies on harnessing the power of recycling. 13 different companies that show – both big and small – a variety of approaches, goods, and technologies that are using recycling to center their business around

Global Analysis





04 TECH STACK

Technologies required for the implementation

TECH STACK

Designing

Figma, Canva, Animaker

Frontend

HTML,CSS, Javascript

Backend

Node JS, Python, TensorFlow

Framework

React JS/Angular JS, Flask

Hosting

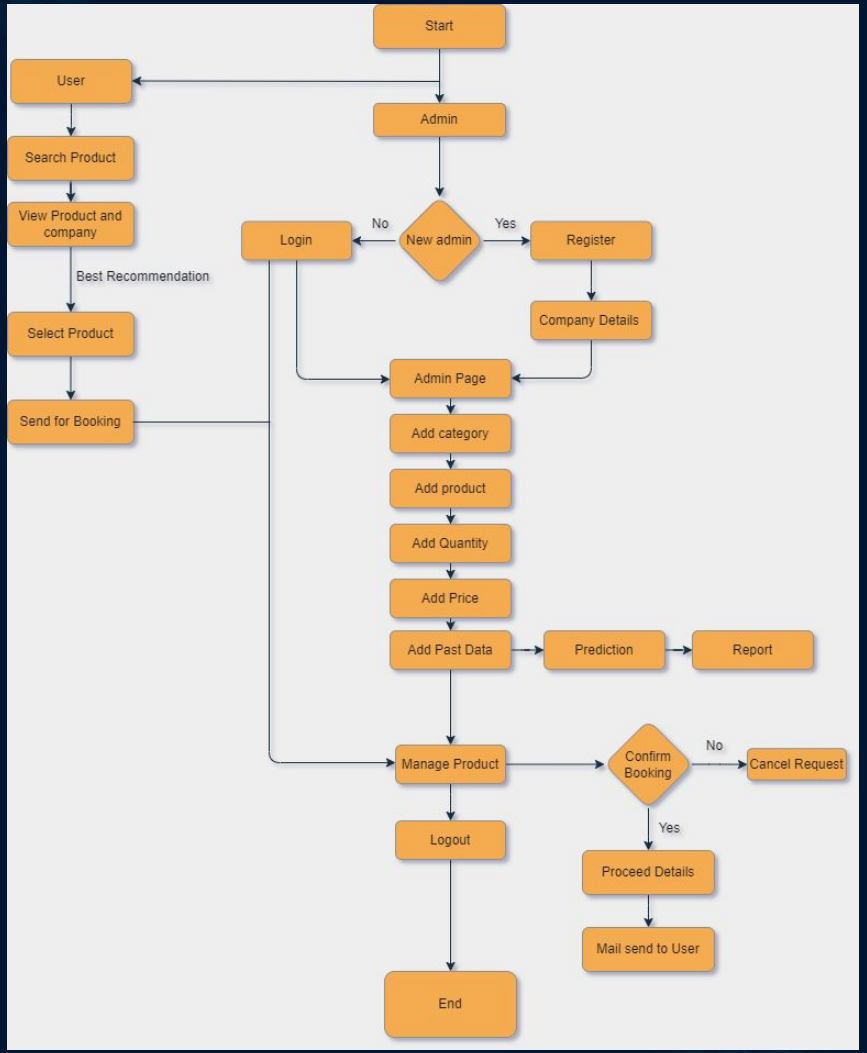
Firebase/Heroku

Database

Firebase, MySQL

05 ARCHITECTURE

Flowchart representation of the implementation


Start
User
Admin
Search Product
View Product and company
Best Recommendation
Select Product
Send for Booking
Login
No
New admin
Yes
Register
Company Details
Admin Page
Add category
Add product
Add Quantity
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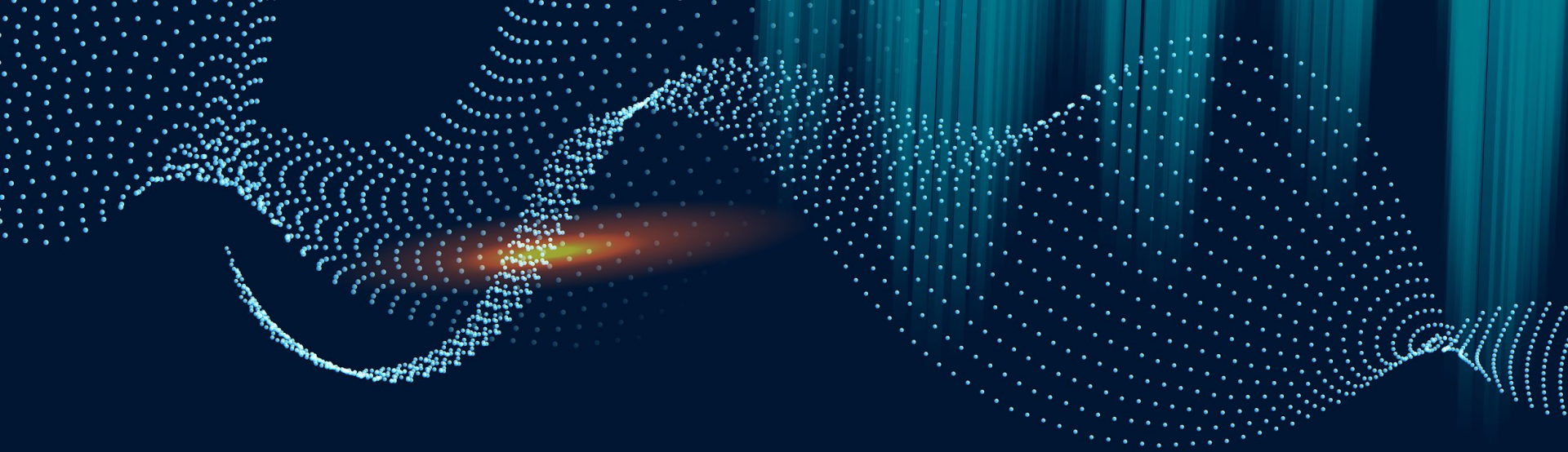
Add Past Data
Prediction
Report
Manage Product
Confirm Booking
No
Cancel Request
Yes
Logout
Proceed Details
Mail send to User
End



07 SCALABILITY

Estimated future business value and scalability of the current implementation

SCALABILITY

- The real-life technique is used in this project to examine the entry threshold while building a new supply chain channel between the manufacturers and the consumers.
- We chose to build a self-payment gateway portal between the Admin and the User to increase the project's future scalability.
- Aside from that, we may scale this idea by engaging overseas enterprises and connecting them with local market players, along with providing budget-friendly import-export transport services.
- On the other hand, we would like to include a feature for managing quality control for recyclable waste materials.

THANKS!

Thank you sir for giving us the opportunity to present our idea.