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Build for Bharat

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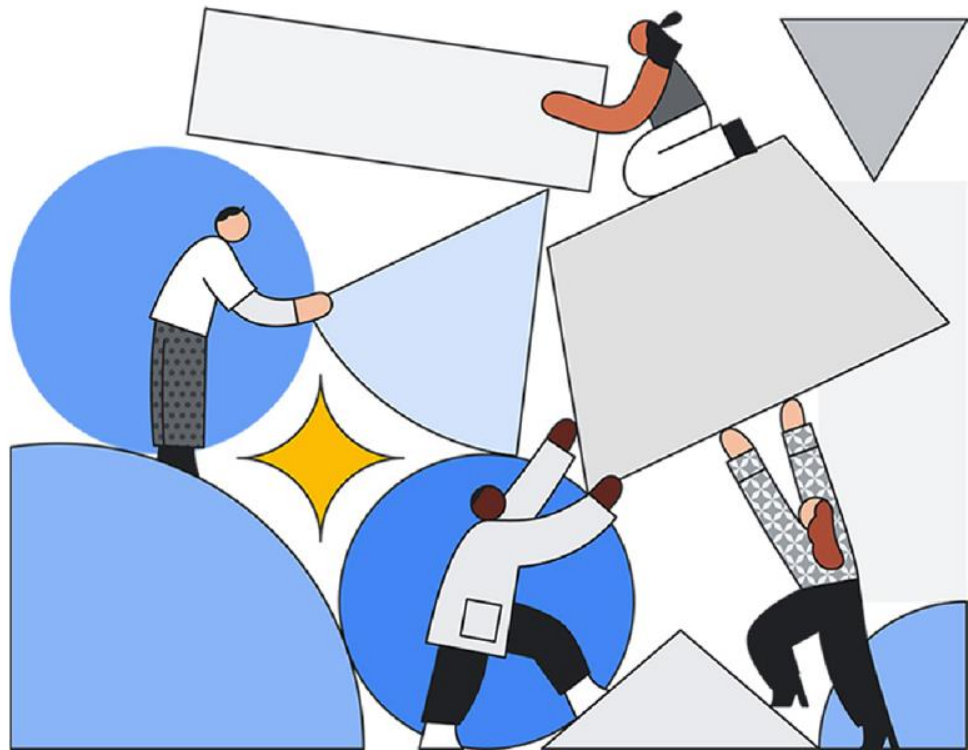


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NextGen Ventures



Team/Individual Introduction

(Provide a brief overview of your past work experience in a few sentences, highlighting your major professional achievements)

Individual 1: Darshan Parsoliya

- Holds a Bachelor's degree in Information Technology (B.Tech), providing a solid academic foundation in computer science and technology, complementing practical internship experience in data analytics and data science domains.
- Proficient in utilizing data analytics tools such as Power BI, Python, and SQL, showcasing a strong foundation in data manipulation, analysis, and visualization.
- Currently serving as a Data Science Intern at Scifor Technology since October 2023, gaining practical exposure to real-world data science projects and environments.

Individual 2: Reshma Jayaprakash

- Working as Design Engineer at D2D Global Technologies in IoT domain from past 5 years along with that, doing internship in Data Science at Scifor Technologies. In addition, completed Internship in Data Science at Hamoye during the year of 2022 and from TCS during 2021.

Team/Individual Introduction

(Provide a brief overview of your past work experience in a few sentences, highlighting your major professional achievements)

- Certified Specialist in Data science and Analytics (28/10/2020 – 10/04/2021) ICT Academy of Kerala and TCS iON.
- Hamoye Certifications in Data Science/ML (03/11/2022 - 30/03/2023)
- IBM Certifications - IBM ML0101EN | IBM PY0101EN (15/06/2023 - 27/0/2023)

Individual 3: Shyamashree Ghorai

- Data Science Intern at Scifor Technologies



Problem Statement

(Describe the problem statement you are solving on ONDC and the rationale behind it)

Problem Statement

In the dynamic landscape of e-commerce and reverse logistics, ensuring the authenticity of returned products is a crucial challenge. Customers returning products, whether genuinely dissatisfied or engaging in fraudulent activities, can significantly impact seller profitability. To address this, our goal is to develop an automated solution that enhances the verification process during product pickup, particularly focusing on the identification of fraudulent, damaged, or incorrect returns and suggest a ban or any other strict actions to be taken on these customers by the organizations dealing with it. Apart from that, customer complaints will also be monitored.

Rationale of choosing the problem statement

1. Impact on Stakeholders:

- The problem has a direct impact on stakeholders, customers, or end-users.



Problem Statement

(Describe the problem statement you are solving on ONDC and the rationale behind it)

- Solving the problem is expected to bring tangible benefits or improvements to the targeted audience.
2. Market Relevance:
- The problem is relevant in the current market or industry context.
 - Solving the problem addresses emerging trends, challenges, or opportunities in the industry.

Solution Deep Dive (1/3) - Research & Insight validation

(Describe your research process for validating the problem statement, solution approach and sizing of the opportunity)

Research process

As the part of Build for Bharat – Next Gen Venture, we connected with two business people who are running logistics organization.

1. Mr. Shiju Gopinath – Owner of MIMS, Trivandrum
2. Mr. Shaji Gopinath – Owner of Gulf Freight and Logistics Company LLC, Dubai

Define a clear ICP (ideal customer profile) for your solution

Business Type:

- E-commerce platforms dealing with a wide range of products.
- Sellers or retailers with a significant volume of product returns.

Industry:

- Retail and E-commerce.

Solution Deep Dive (1/3) - Research & Insight validation

(Describe your research process for validating the problem statement, solution approach and sizing of the opportunity)

Scale:

- Medium to large-scale businesses with a substantial customer base.

Product Categories:

- Sellers dealing with diverse product categories, including electronics, apparel, and perishable goods.

Return Rate Sensitivity:

- Businesses with a high sensitivity to return rates impacting their bottom line.

Logistics Infrastructure:

- Companies relying on third-party logistics providers for product pickups.

Compliance Concerns:

- Companies concerned about compliance with return policies, fraud prevention, and customer satisfaction.

Solution Deep Dive (1/3) - Research & Insight validation

(Describe your research process for validating the problem statement, solution approach and sizing of the opportunity)

Desire for Automation:

- Businesses looking to streamline reverse logistics processes with automated solutions to reduce fraud, enhance accountability, and improve overall efficiency.

Data-Driven Decision-Making:

- Enterprises that value data analytics for insights into return patterns, fraud detection, and customer behavior.

Highlight the key insights & learnings from the research, that indicate validation of the problem and expected solution

- High Return Rates Challenge - prevalent challenge in the e-commerce industry with high return rates, primarily due to fraudulent and damaged product returns.
- Fraud Detection and Impact - Analysis of return patterns and existing manual processes highlighted a critical gap in fraud detection during product returns.

Solution Deep Dive (2/3) - Solution approach validation

(Describe your research process for validating the problem statement, solution approach and sizing of the opportunity)

Explain the solution approach/business model in a few lines/pictorial representation.

Deliverable 1

The analysis of return rates and model performance revealed valuable insights into the factors influencing returns and the effectiveness of predictive models in classifying return labels. Visualizations of return rates by different categorical features highlighted patterns and trends, aiding in the identification of areas prone to higher return rates. The evaluation of machine learning models using metrics such as accuracy, precision, recall, and F1-score provided a comprehensive understanding of their predictive capabilities. Additionally, examination of confusion matrices facilitated a deeper analysis of classification behavior, guiding potential improvements in model performance.

Key findings:

- **Factors Influencing Returns**

Solution Deep Dive (2/3) - Solution approach validation

(Describe your research process for validating the problem statement, solution approach and sizing of the opportunity)

- **Effectiveness of Predictive Models**
- **Patterns and Trends in Return Rates**
- **Comprehensive Understanding of Model Performance**

Deliverable 2

The provided code automates the creation of QR codes for product IDs from a dataset, indicating their validity status using predefined prefixes. It first loads the dataset and defines valid prefixes. Then, it generates QR codes for each product ID, embedding information about validity, and saves them in an output directory. Finally, it prints a mapping of product IDs to their corresponding QR code file paths. This approach enhances inventory management by providing a quick and efficient way to visually identify products and their validity status.

Solution Deep Dive (2/3) - Solution approach validation

(Describe your research process for validating the problem statement, solution approach and sizing of the opportunity)

Key Finding:

- **QR Code Validity Verification Algorithm**

Deliverable 3

The approach for Deliverable 3 involves initial data preprocessing to calculate return rates and classify customers based on their return behavior. This includes aggregating data to determine fraudulent return counts, imputing missing values, and encoding categorical variables. Feature selection is conducted to identify relevant attributes, followed by the splitting of the dataset for model training and evaluation. Various classification algorithms are trained and assessed for their performance using metrics such as accuracy, precision, recall, and F1-score. Additionally, customer complaints are analyzed by categorizing them based on return rates and visualizing associated complaint types to discern prevalent issues. Through this comprehensive analysis, the deliverable aims to provide actionable insights into customer return behavior and associated complaints for

Solution Deep Dive (2/3) - Solution approach validation

(Describe your research process for validating the problem statement, solution approach and sizing of the opportunity)

effective decision-making and strategy formulation.

Key finding:

- Initial data preprocessing for return rate calculation and customer classification.
- Training and evaluation of classification algorithms using various metrics.
- Analysis of customer complaints based on return rates for issue identification.

Project Solution

Github Link

<https://github.com/darshan220902/Reverse-Logistic>

Video Link

https://drive.google.com/file/d/10__82ZvpkNiyBBmYGU7bcx3dtrS22dmT/view?usp=drive_link

Solution Deep Dive (3/3) - Monetisation & venture scale validation

(Describe your research process for validating the problem statement, solution approach and sizing of the opportunity)

Describe your go-to-market strategy to reach your customers

- Establish a strong online presence through content marketing. Publish whitepapers, blog posts, and case studies highlighting industry challenges, the impact of high return rates, and the role of automated solutions.
- Identify and segment the market based on factors such as industry type, business scale, and return rate sensitivity.
- Offer live product demonstrations to potential customers, showcasing the solution's features and its seamless integration into existing workflows.
- Invest in targeted digital advertising campaigns using platforms such as Google Ads and social media.

Define your expected monetization per customer in the beginning & at scale

Beginning Phase:

Solution Deep Dive (3/3) - Monetisation & venture scale validation

(Describe your research process for validating the problem statement, solution approach and sizing of the opportunity)

- Introduce a subscription-based pricing model where customers pay a monthly or annual fee to access the automated reverse logistics solution.
- Customization fee - If customers require additional features or extensive customization, consider charging a one-time customization fee.

At Scale Phase:

- Introduce specialized enterprise plans for large-scale businesses with high return volumes.
- Develop partnerships with e-commerce platforms and logistics providers, charging them for integration services.

Define the overall Total Addressable Market (TAM)/ expected Revenue pool for this solution approach

- Utilize industry reports, market research, and existing data to estimate the total market size for reverse logistics solutions.

Solution Deep Dive (3/3) - Monetisation & venture scale validation

(Describe your research process for validating the problem statement, solution approach and sizing of the opportunity)

- Identify the target segments within the e-commerce, retail, and logistics industries that are likely to benefit the most from the automated reverse logistics solution.
- Analyze the competition in the reverse logistics solutions space. Identify existing players and assess their market share.
- Define the pricing model based on the target market segments. Consider the pricing tiers, subscription plans, and transaction-based fees.
- Conduct a risk analysis to identify potential challenges and uncertainties that could impact revenue projections.

Next 6 Month Goals

(Describe what operational targets are you setting for the next 6 months for this venture)

1. Implement targeted marketing and outreach campaigns to attract businesses from diverse sectors, by expecting some conversion rate.
2. Establish partnerships with at least two major e-commerce platforms or retail chains to integrate the solution into their operations.
3. The solution mainly comprises the goal to avoid the fraudulent activities from the buyers by providing authenticated verification process. In existing solutions the sellers fail to complete the verification steps and falls into huge loss including the shipping/freight and man power expenses. Our solution helps provide decrease in the expenses of an organization and in turn increase the revenue.
4. Streamline reverse logistics processes, aiming for a 15% reduction in the time taken to process returns.
5. Implement a tiered pricing strategy to encourage upselling and cater to the varied needs of different customer segments.

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Next 6 Month Goals

(Describe what operational targets are you setting for the next 6 months for this venture)

6. Expand the operational reach to cover at least three major cities or geographical segments.
7. Implement regular updates and improvements to the automated solution based on user feedback and emerging industry trends.



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