



blinkit



- **TEAM NAME - BUG BUSTERS**

- **TEAM MEMBERS :**

- **DHARMIK GOHIL - TEAM LEADER**
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PROBLEM STATEMENT

Waste Management Automation in Dark stores

AI-powered scanning and Google Maps tracking automate waste sorting, optimizing recycling and disposal. This system reduces manual effort, lowers costs, and enhances sustainability in dark store operations.

SOLUTION OVERVIEW

Managing expired and damaged products can be a challenge, but AI-powered cameras and barcode scanners make it easier by identifying product conditions and tracking expiry dates automatically. Real-time alerts notify store managers about soon-to-expire items, allowing them to apply discounts or redistribute them before they go to waste. An advanced AI model studies inventory patterns, helping to prevent overstocking and reduce waste. Automated sorting ensures that expired, damaged, and recyclable products are properly categorized for disposal. Interactive dashboards provide clear insights into waste levels and trends, helping businesses make data-driven decisions. Additionally, a location-based system directs users to nearby waste disposal facilities, ensuring responsible and efficient waste management. This smart approach reduces waste, lowers costs, and makes dark stores more

- Automated Scanning:
- Smart Categorization:
- Automated Sorting:
- Integration with Recycling Units:
- Data Analytics & Tracking:

PROPOSED FEATURES

- Automated Scanning:** Uses AI-powered QR/barcode scanning and computer vision to identify waste.
- Smart Categorization:** Classifies waste into recyclable (plastic, packaging) and non-recyclable (expired, damaged).
- Automated Sorting:** Directs waste to the correct processing unit using conveyor belts or robotic arms.
- Integration with Recycling Units:** Connects with recyclers and waste disposal services for efficient processing.
- Data Analytics & Tracking:** Monitors waste generation, recycling rates, and sustainability impact.

TECH STACK

FRONTEND

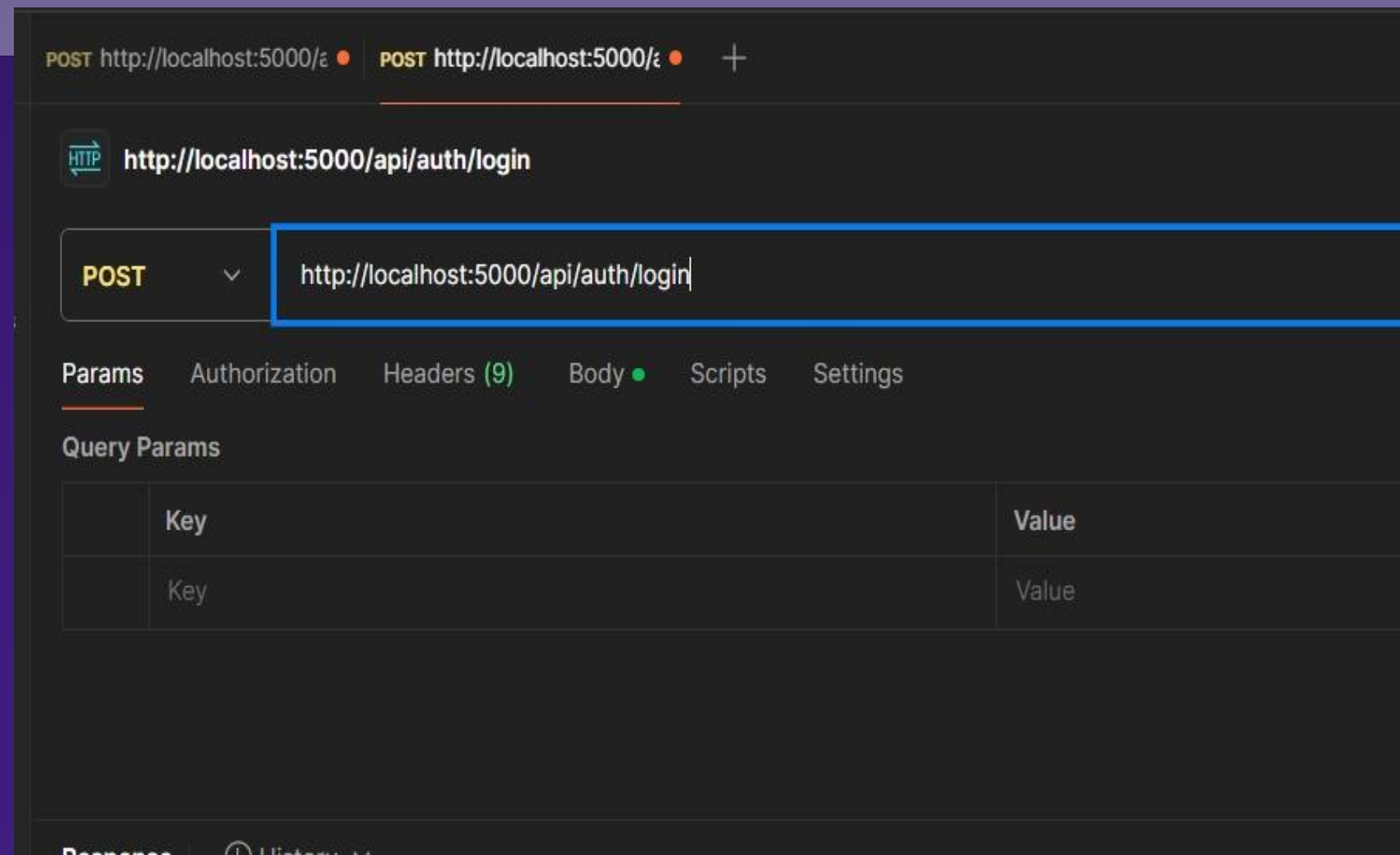
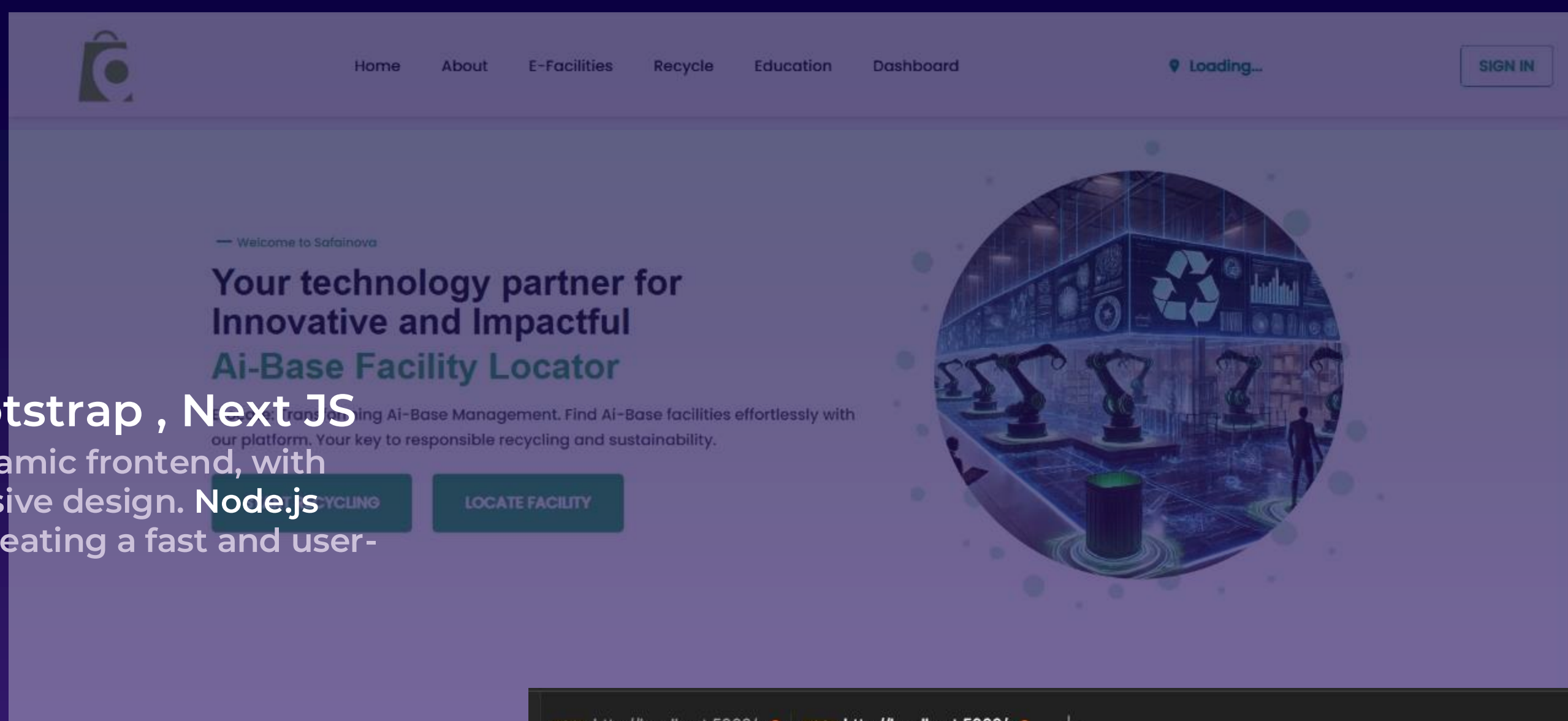
React , Node.JS, Tailwind Bootstrap , Next JS

We are using React and Next.js for a dynamic frontend, with Tailwind CSS and Bootstrap for a responsive design. Node.js ensures smooth backend interactions, creating a fast and user-friendly interface.

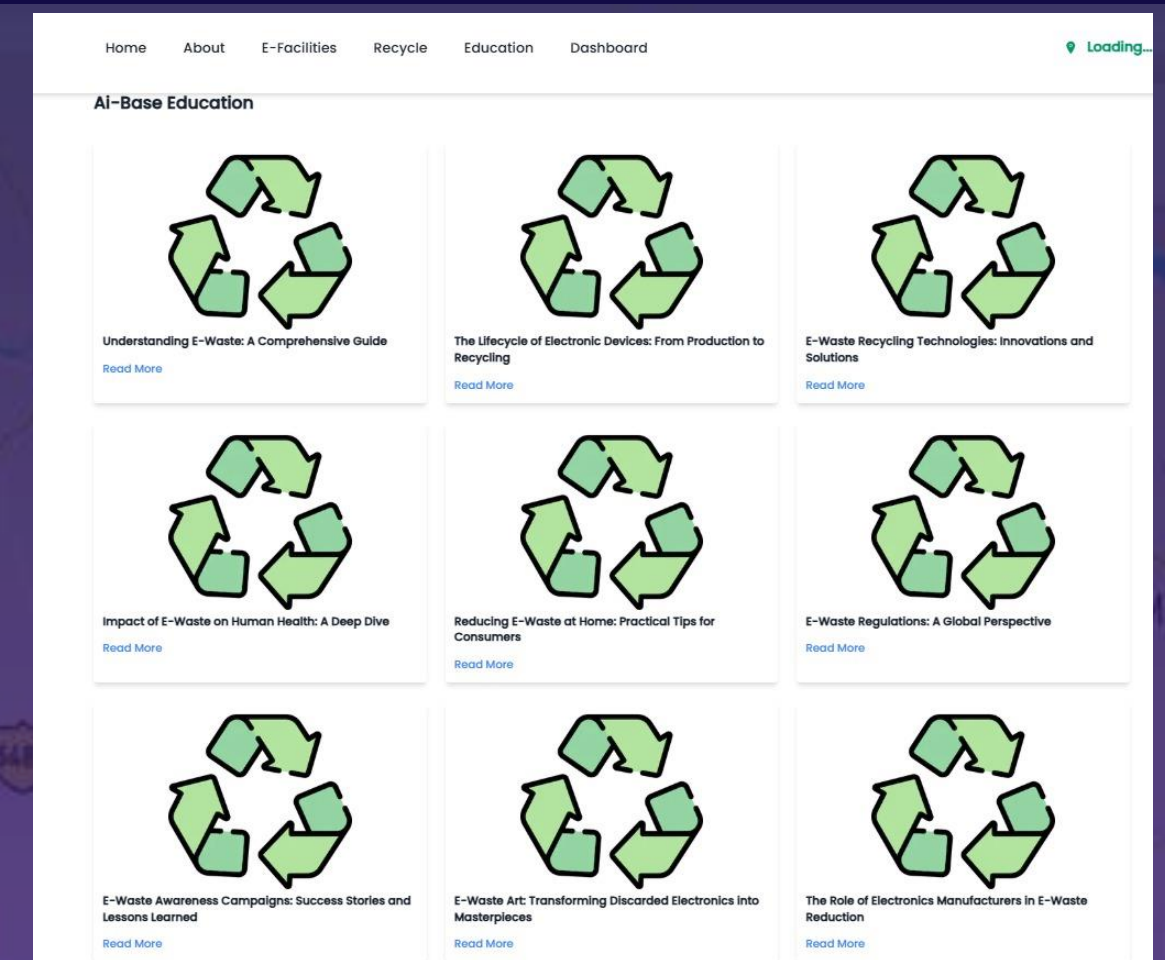
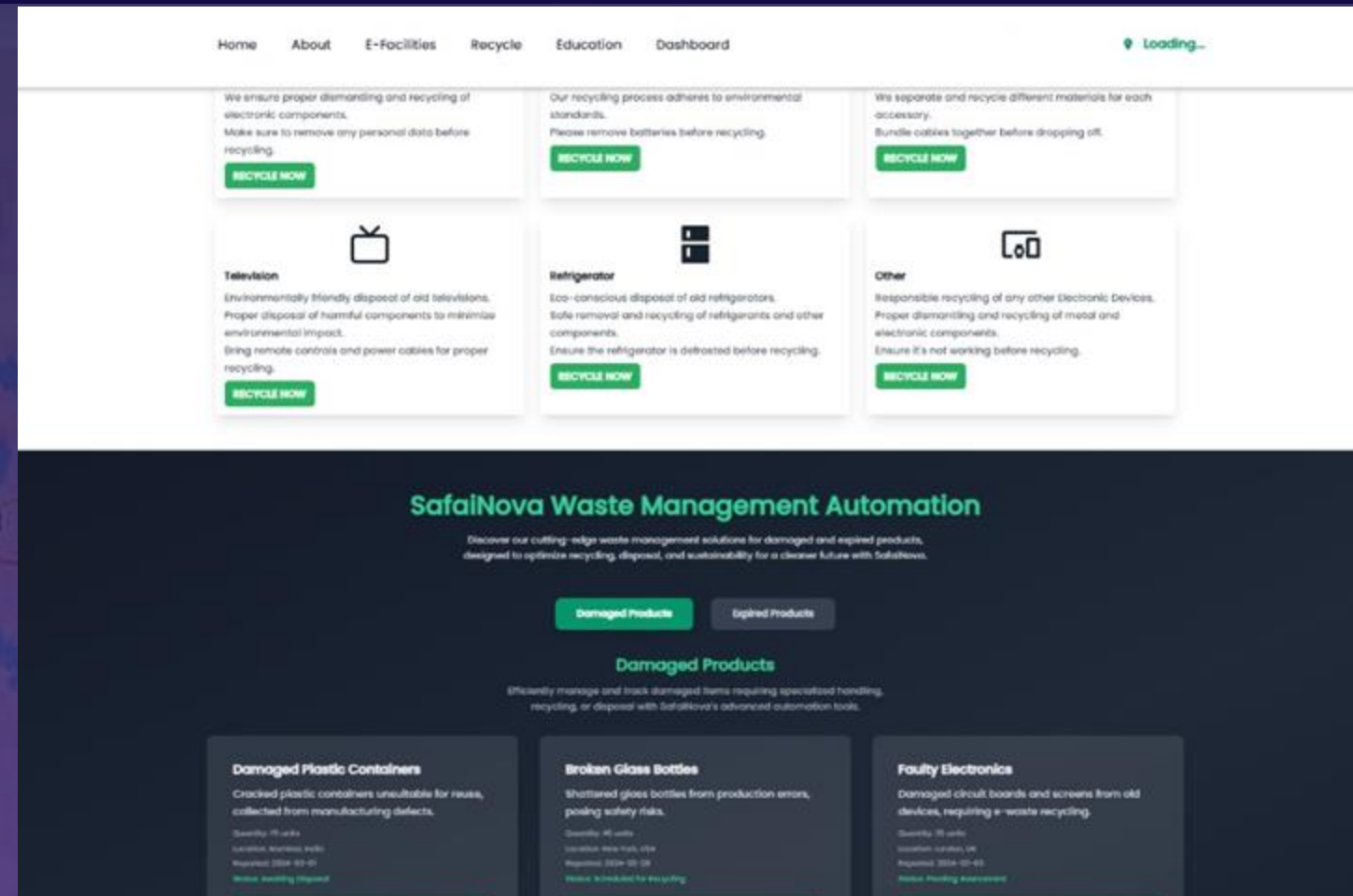
BACKEND

MERN Stack, MONGO DB , Firebase , RestAPI

For the backend, we are using the MERN stack with MongoDB for database management, Firebase for authentication and real-time updates, and REST API for seamless communication between the frontend and backend. This setup ensures scalability, security, and efficient data handling.



DATA RESOURCES REFERRED IF APPLICABLE



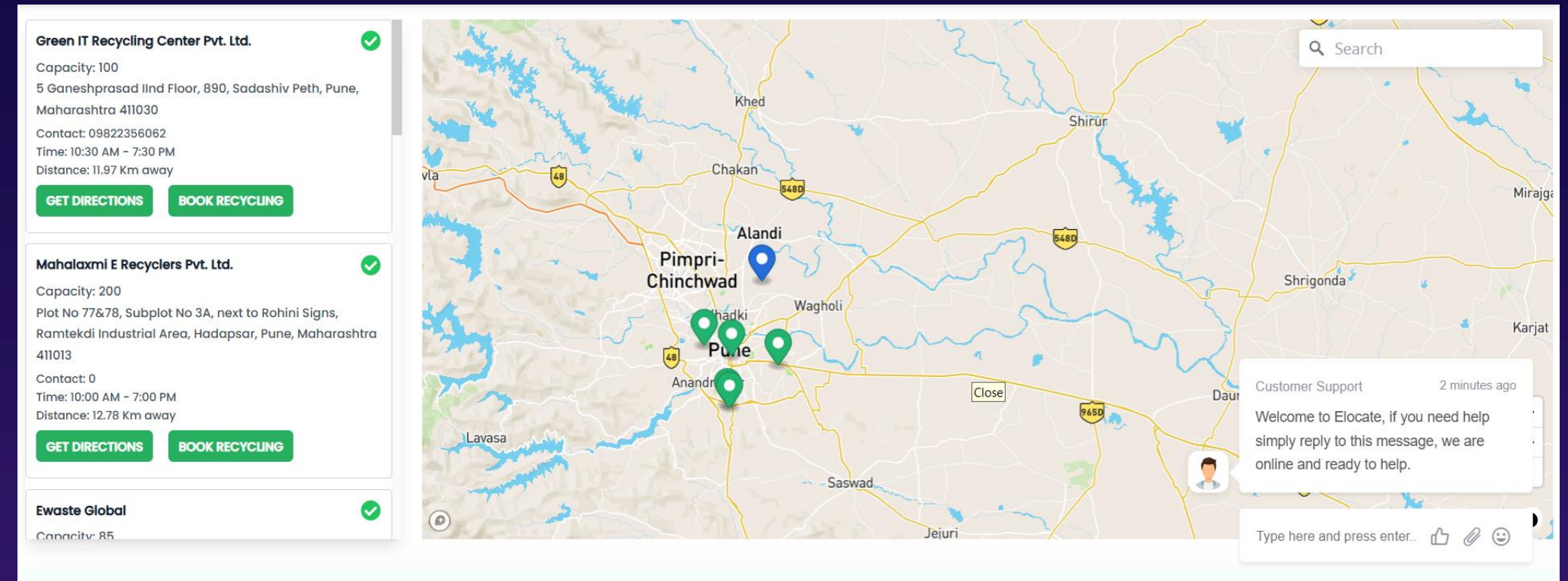
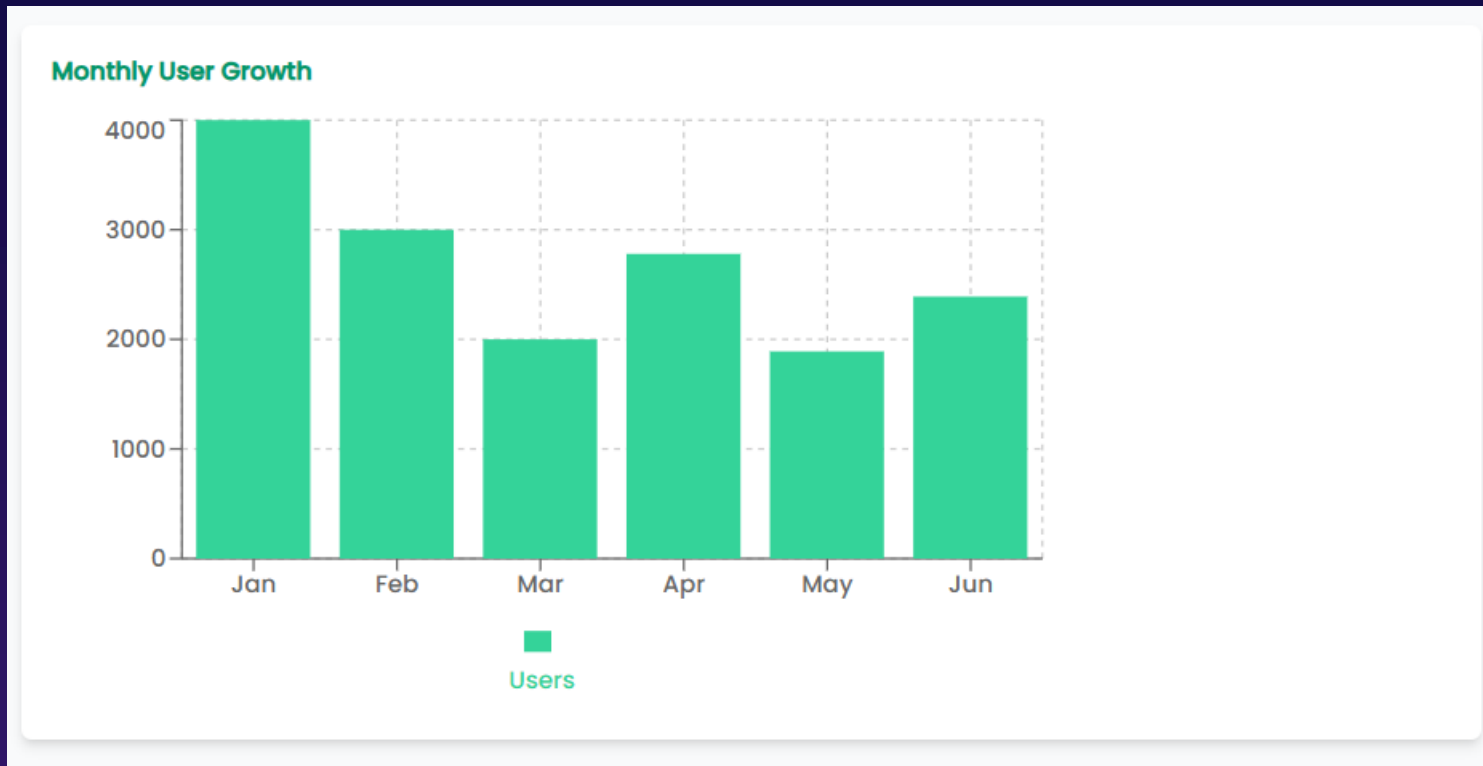
Google Maps Location System:

- Tracks nearby recycling centers and automates waste service allocation.
- Optimizes pickup routes to reduce transportation costs and improve efficiency

TensorFlow AI Model :

- Uses image recognition to classify waste into recyclable and non-recyclable categories.
- Continuously learns and improves accuracy for better waste management automation.

SOLUTION ARCHITECTURE OR USER DIAGRAMS

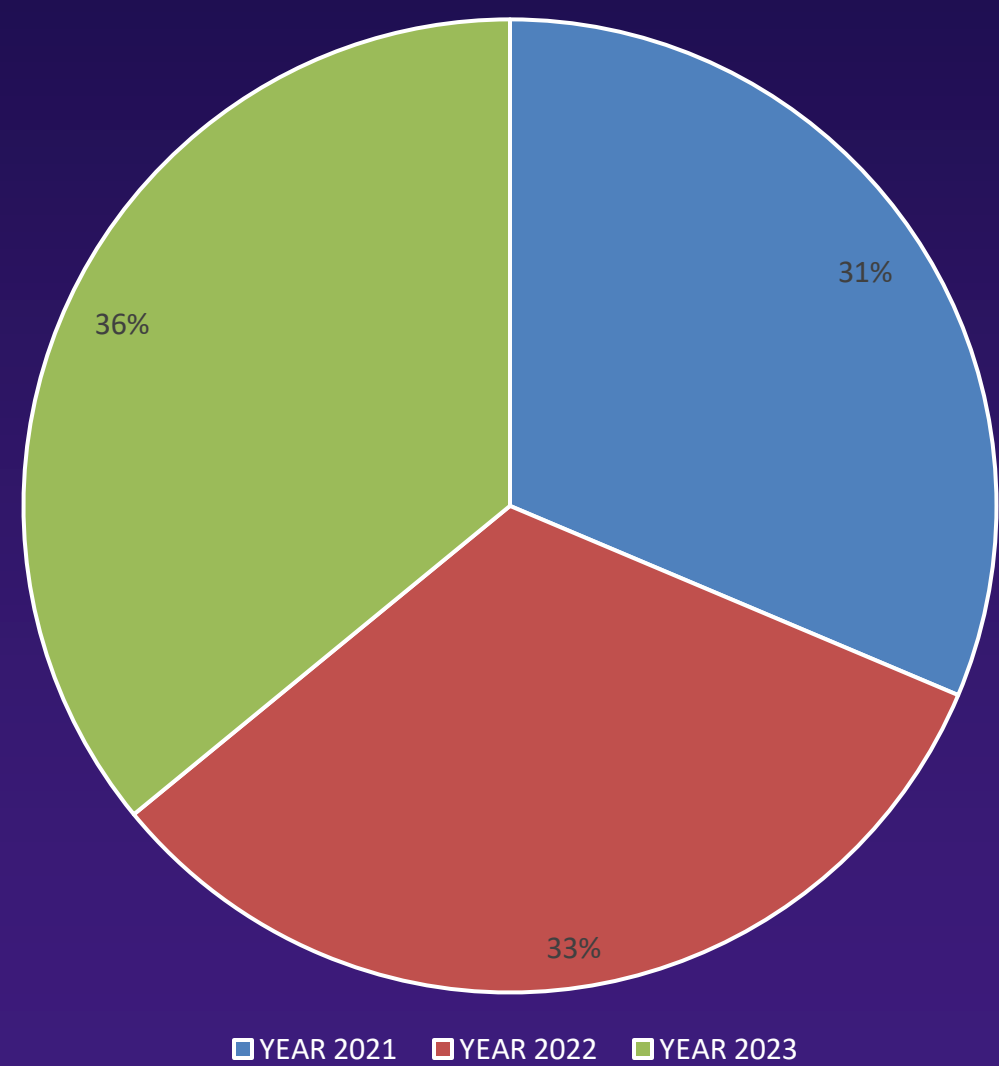


Key Features for Dashboard:

- **Live Location Tracking:** Monitors recycling service providers in real-time for optimized waste pickup.
- **Graph Representation:** Displays data on damaged, expired, recyclable, and non-recyclable products.
- **Data Analytics:** Tracks waste trends, recycling rates, and efficiency insights for better decision-making.
- **Admin Dashboard:** Provides a centralized view for company admins to oversee waste management operations.
- **Automated Reports:** Generates periodic reports on waste disposal, helping in compliance and sustainability efforts.

FUTURE SCOPE & OUTCOMES EXPECTED

last 3 Year Data Analysis of Waste management



Efficient Waste Handling & Real-Time Data Insights:

- ✓ Automated waste sorting through AI-powered QR scanning, reducing manual effort.
- ✓ Data analytics dashboard helps predict future waste generation, reducing overstocking & expiry losses.

Cost Reduction & Revenue Generation:

- ✓ Monetizing recyclables by connecting dark stores with recycling vendors
- ✓ Lower disposal costs with optimized waste pickup schedules. Improved inventory forecasting, reducing expired product losses.

Environmental Sustainability & Compliance:

- ✓ More recyclable waste processed, reducing landfill contribution. Helps businesses meet government regulations & sustainability goals.
- ✓ Carbon footprint reduction, improving the brand's eco-friendly reputation.

Expected Outcomes & Long-Term Impact :

- 30-40% reduction in waste disposal costs by optimizing recycling & waste categorization.
- Up to 50% increase in recyclable waste collection, reducing landfill waste.
- Faster waste processing with AI-driven categorization, saving time for store employees.
- Enhanced business reputation as dark stores shift towards sustainable & responsible operations.



THANKS