INTELLICART

An IOT Based Smart Cart with Enhanced Efficiency and Security.

Problem Statement

The Challenge:

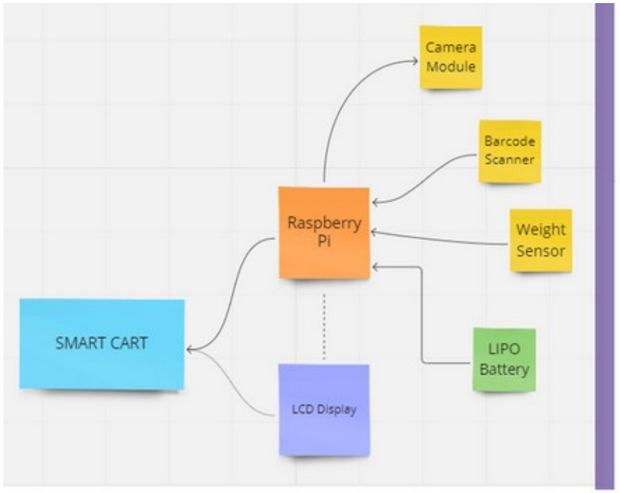
Traditional shopping experiences often involve long checkout times, lack of personalized assistance, and inefficient inventory management. This challenge calls for creative minds to address these pain points and pave the way for a retail transformation.

Description:

The problem statement revolves around elevating the shopping experience by optimizing efficiency and convenience for both shoppers and store personnel. The overarching project objective is to markedly reduce checkout durations, introduce real-time product recommendations, and elevate the precision of inventory management processes. The envisioned system will seamlessly streamline the checkout procedure while simultaneously providing invaluable in-store navigation guidance.

IDEA / APPROACH DETAILS

In retail and logistics, a high-tech shopping cart is proposed with a **camera for product recognition, weight sensors, barcode scanner, display screen and a raspberry pi 4.** The aim is to streamline the shopping experience for customers and enhance inventory management for retailers. We are providing a versatile kit that seamlessly integrates into existing shopping carts, regardless of their size or dimensions.



WORKING :

- **Cart Selection:** Shoppers choose an IoT-enabled smart cart upon entering the store, optionally registering through a mobile app for personalized features.
- **Effortless Scanning:** Shoppers use the IntelliCart's barcode scanner to add items, with a built-in camera module ensuring product validation.
- **Real-time Monitoring:** Weight sensors continuously track cart contents, displaying item details on the cart's screen.
- **Seamless Checkout:** Upon exit, the cart processes digital payments automatically, generating a digital receipt for convenience.
- **Inventory Updates:** Real-time updates help store staff manage stock efficiently, ensuring products are readily available.

TECHNOLOGY USED :

React JS · Express JS · YOLOv8 · DigitalOcean · HOSTING · Raspberry Pi os · Flutter · tailwindcss · SOLIDWORKS · node · Figma · MySQL

IDEA / APPROACH DETAILS

Use Cases :

- **Speedy Checkout** : Reducing time spent in the store helps conserve energy and resources by decreasing the need for lighting, heating, and cooling in retail spaces.
- **Data Analysis for Stores:** Enables stores to optimize inventory levels, businesses can gain valuable insights into which products are performing well and which may need adjustments.
- **User-Centric Approach:** Increases accessibility, enabling a more inclusive shopping experience for differently abled, busy professionals. Elderly or physically challenged individuals, parents with young children & for data-driven shoppers.
- **Optimizing Routes for Efficient Travel and Shopping** Using IoT technology to optimize navigation during shopping excursions, ensuring efficient routes and saving time.
- **Paperless Billing and Digital Transactions** Transitioning to paperless billing and digital payment systems to reduce paperwork, lower costs, and minimize environmental impact.

Show Stopper :

- **Unique in India:** There are **no existing products** like this **in India**, We also have a **patent publication**.
- **Competitive Pricing:** Our product is **1/4 the cost** of other foreign existing products, making this **advanced technology** accessible to a wide range of businesses, from small retailers to large enterprises.
- **User-Friendly Interface:** The **intuitive user interface** caters to **shoppers of all ages** and technical backgrounds, ensuring an enjoyable and accessible shopping experience.
- **Sustainability Focus:** With optimized routes and reduced energy consumption, the smart cart aligns with **sustainability goals**, making it an **eco-friendly** choice for retailers.
- **Personalized Shopping:** The smart cart uses **artificial intelligence** and **machine learning** to offer personalized product recommendations, enhancing the shopping experience and boosting sales.

COMPARISON CHART

FEATURES	BARCODE SCANNER	UPGRADE EXISTING CART	IMAGE PROCESSING	WEIGHT	COST
Sobeys	✓	✗	✓	✓	RS 5,58,061
Dash Cart technology by amazon	✓	✗	✓	✓	RS 3,18,892
CUST2MATE	✗	✓	✓	✓	RS 2,39,169
Shopic	✗	✓	✓	✗	RS 79,723
IntelliCart SHOPPING CART	✓	✓	✓	✓	RS 35,000 (APPROX)

BUSINESS MODEL CANVAS

Problem

- Long Waiting Queues
- Slow checkout process
- Time Consuming
- No personalization.

Solution

- Smart Cart
- Fast Checkout
- No Waiting in Queues
- Improved Customer experience.

Unique Value Proposition

- In cart checkout
- Smart Payment Solutions
- Enhanced Insights
- Seamless Connectivity

Unfair Advantages

- Implementation Costs
- Disruption of Workforce
- Technical Disparities

Customer Segments

- Wastage of time
- Struggle to stand in queues
- No Customization

Existing Alternatives

- No existing product available in India
- Foreign available products are way too expensive

Key Metrices

- Increased Sales
- Checkout Time Reduction
- Customer Satisfaction

High-Level Concept

- End of Queue
- Fast Checkout process
- Weigh item in cart
- Scalability and Expansion

Channel

- Social Media
- Satisfied Customers
- Pleased Retailers

Early Adopters

- Large Supermarket
- High-End Department Stores
- Specialty Retailers
- Local Retailers

Cost Structure

- Marketing and Promotion
- PR & Legal Costs
- Server Maintenance
- Stock Maintenance & Distribution
- Training and Support

Revenue Stream

- Subscription or Licensing Fees
- Sale or Lease of Smart carts
- Value-Added Services
- Mobile App Monetization