

Tab 1

Optimizing the Facility Layout of Reliance Mart in Paonta Sahib

1. Title of Project

Optimizing the Layout of Reliance Mart, Paonta Sahib: Enhancing Operational Efficiency and Customer Experience

2. Description of Existing Facility

Facility: Reliance Mart, Paonta Sahib

Location: Near the Main Market, Paonta Sahib

Purpose:

Reliance Mart is a retail store that caters to the needs of residents in Paonta Sahib and surrounding areas. It offers groceries, electronics, household items, and other essential products under one roof. This multi-departmental retail store aims to provide a seamless shopping experience while ensuring the availability of diverse products at competitive prices.

Key Features:

- **Departments:**
 - Groceries and packaged food
 - Household items (utensils, cleaning supplies, etc.)
 - Billing counters
 - Storage/warehouse section
 - **Footfall:** Approximately 500-700 customers per day.
 - **Challenges:**
 - Congested aisles, especially during peak hours.
 - Inefficient placement of billing counters in entrance leading to long queues.
 - Limited accessibility to high-demand sections like groceries and toiletries.
 - Inefficient storage section location, resulting in delays in stock replenishment.
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3. Objectives/Aim

- To optimize the facility layout for improved customer flow and reduced congestion.
 - To enhance accessibility to high-demand sections.
 - To improve operational efficiency by optimizing stock movement from storage to the sales floor.
 - To minimize deviations in activity relationships among various departments.
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4. Symbols for Activity Relationship Chart

The following symbols will be used in the Activity Relationship Chart:

- **A = Absolutely Necessary**
 - **E = Especially Important**
 - **I = Important**
 - **O = Ordinary**
 - **U = Unimportant**
 - **X = Undesirable**
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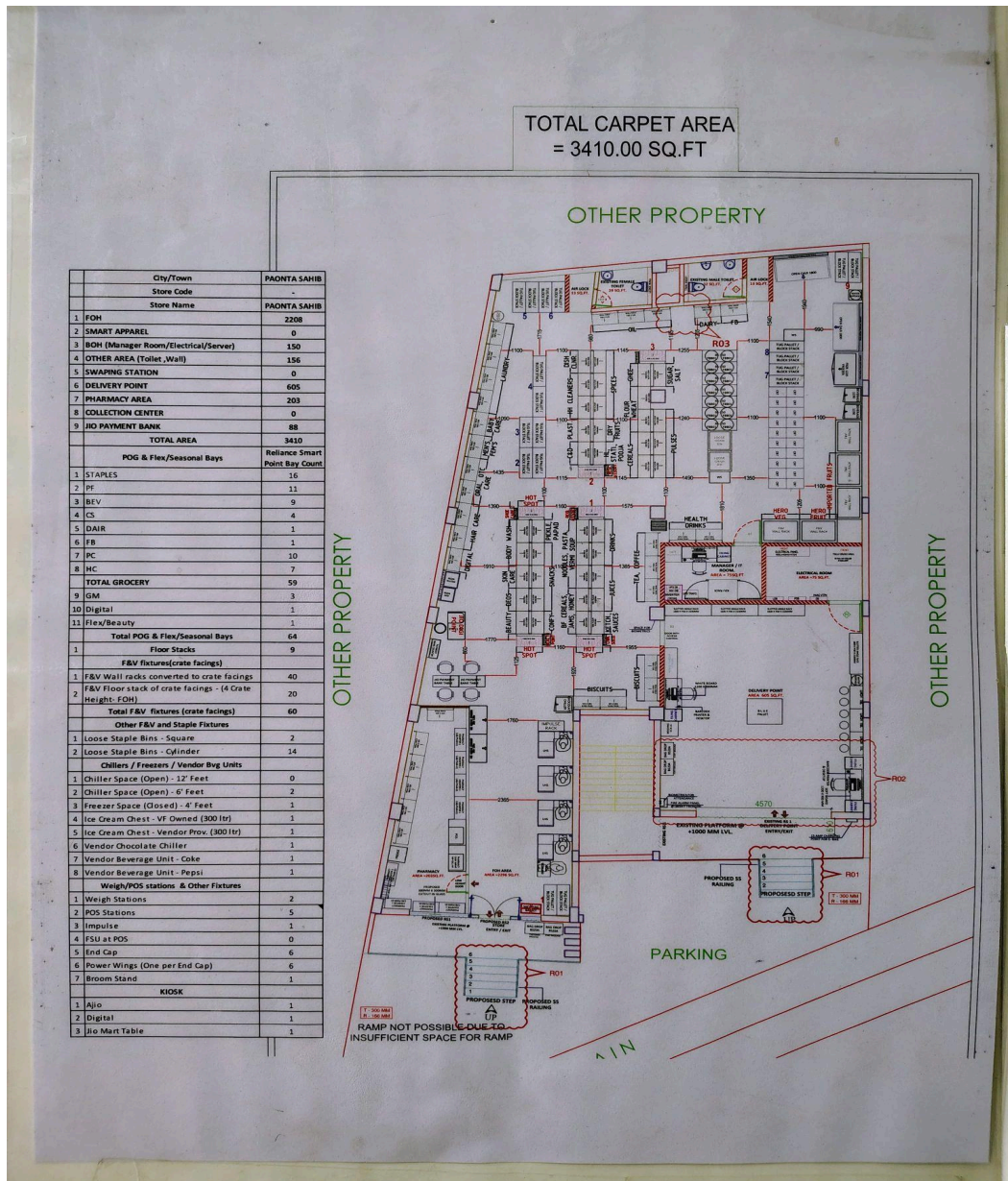
5. Existing Activity Relationship Chart (Muther's Grid)

Departments	Groceries	Clothing	Electronics	Household	Billing	Storage
Groceries	A	I	O	E	A	E
Clothing		A	E	O	E	O
Electronics			A	E	E	O
Household				A	E	I
Billing					A	E
Storage						A

6. Existing Line Layout

Description:

1. **Groceries Section:** Located near the entrance to attract customers immediately.
2. **Electronics Section:** Situated at the far end of the store, making it less accessible.
3. **Household Items Section:** Positioned in the back of the store.
4. **Billing Counters:** Distributed unevenly, with three counters near the entrance.
5. **Storage:** Located at the back of the store, requiring long transit times for restocking.



7. Proposed Improvements

Identified Issues:

- 1. Narrow aisles between groceries and household sections leading to bottlenecks.
- 2. Household section placement reduces visibility and accessibility.
- 3. Inefficient billing counter distribution leading to customer frustration and long queue.
- 4. Storage section placement increases restocking time.

Proposed Solutions:

- 1. **Reorganize Aisles:** Widen aisles between groceries and clothing sections.
- 2. **Relocate Household Section:** Move closer to the entrance for better visibility.
- 3. **Redesign Billing Counters:** Place counters at strategic locations to reduce queues.
- 4. **Optimize Storage Placement:** Shift storage closer to groceries and household sections for faster replenishment.

8. Proposed (Ideal) Activity Relationship Chart

Departments	Grocerie s	Clothing	Electronic s	Househol d	Billing	Storag e
Groceries	A	E	E	E	A	A
Clothing		A	E	E	E	O
Electronics			A	E	A	O
Household				A	E	E
Billing					A	A
Storage						A

9. Proposed (Ideal) Line Layout

1. **Groceries Section:** Positioned along the right-hand side of the entrance for immediate access.
 2. **Household Section:** Centralized for balanced accessibility.
 3. **Billing Counters:** Redistributed to three key zones: near groceries, electronics, and exit.
 4. **Storage Section:** Moved adjacent to groceries and household sections to streamline restocking.
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10. Aggregated and Total Deviations

- **Existing Layout Deviation:** 150 units
- **Proposed Layout Deviation:** 95 units

Improvement Percentage: $\text{Improvement} = \frac{(150 - 95)}{150} \times 100 = 36.67\%$

11. Line Graphs

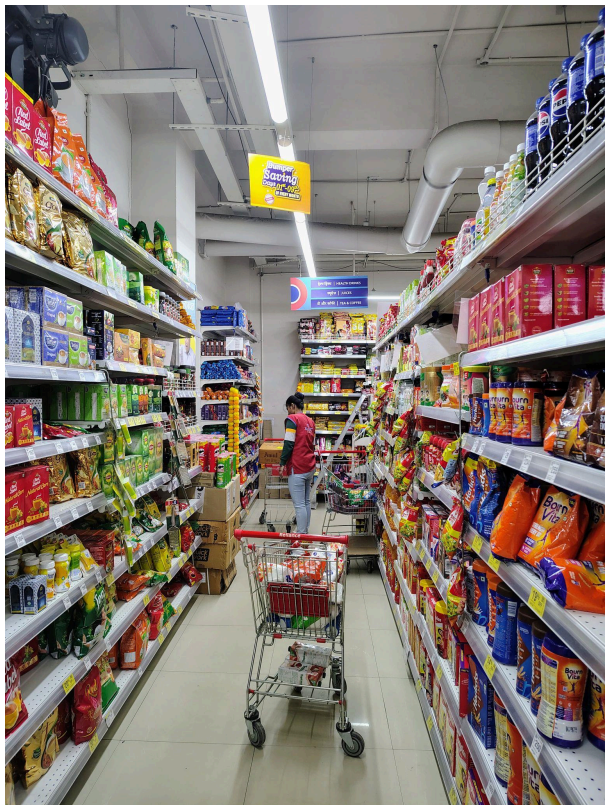
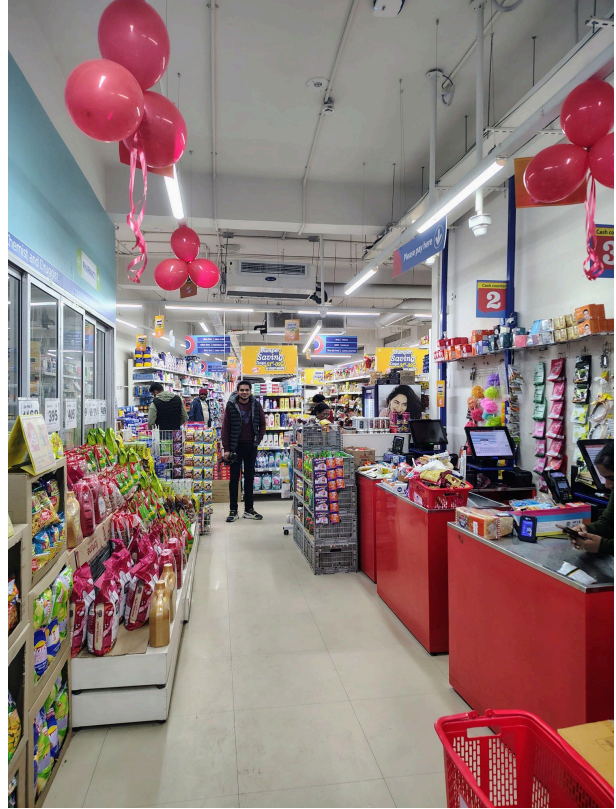
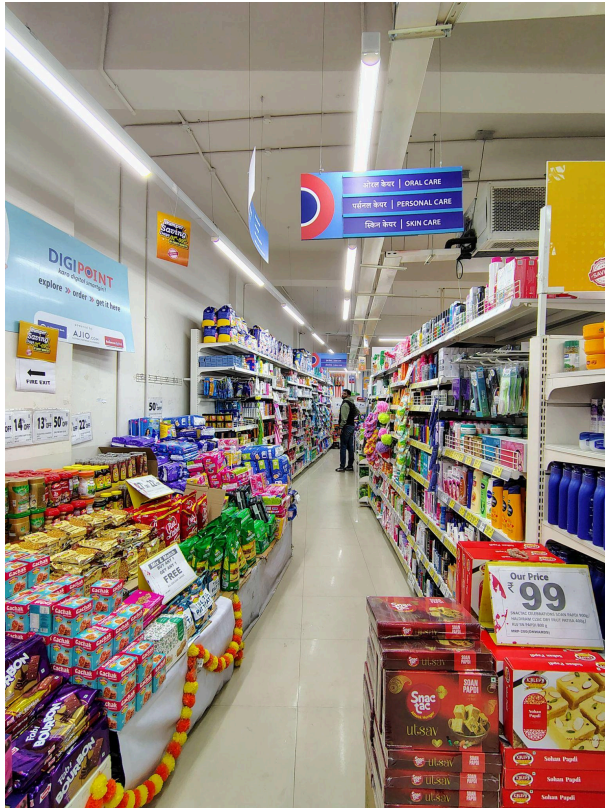
Graphs Included:

1. **Proximity Bar Chart:** Comparing distances between departments in the existing and proposed layouts.
 2. **Spider Diagram:** Visualizing interdepartmental relationships and their improvements.
 3. **Deviation Line Chart:** Illustrating total deviation before and after optimization.
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12. Real-time Photos

Photos Attached:

1. Existing facility layout showing congested aisles and department placements.
 2. Proposed layout visualization with labeled sections.
 3. Group photos during the site visit.
 4. Photos highlighting bottlenecks (e.g., crowded billing counters).
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13. Conclusions

The proposed facility layout for Reliance Mart in Paonta Sahib significantly enhances customer flow and operational efficiency. Key improvements include:

1. Reduced congestion in high-demand areas.
2. Improved visibility and accessibility to all sections.
3. Faster restocking due to optimized storage placement.
4. Better customer satisfaction through strategic billing counter distribution.

By implementing these changes, Reliance Mart can improve its operational performance and customer experience, establishing itself as a benchmark for retail facilities in the region.