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INNOVATION IN ACTION: TURNING IDEAS INTO REALITY

Chapter 57
EasySort App

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ABSTRACT

Global trade depends on sorting operations in export hubs and warehouses, but manual labelling, handwritten notes and verbal directions are some of the old methods that frequently result in mistakes, delays and lost goods. We created EasySort, a clever sorting tool that uses coloured QR codes to improve item management and to solve these problems. Fast visual identification and precise digital scanning are made possible by the fact that each colour denotes a distinct product category or delivery priority. This dual technique cuts down on new hire training time while increasing sorting speed and accuracy. The EasySort software rapidly recognizes the colour of an item when its QR code is scanned, and it gives clear sorting directions. Additionally, the system minimizes human error and streamlines warehouse operations by tracking sorting actions in real time via a connected platform.

Key Word: Smart Sorting, QR Code, International Trade, delivery, warehouse

1. BACKGROUND

EasySort is a smart warehouse solution made to increase logistics accuracy and efficiency, particularly in e-commerce and export hubs. It streamlines parcel sorting by digitally and visually identifying categories such as urgent, local, export, fragile, or large items using color-coded QR codes. This hybrid system improves tracking, decreases errors and simplifies procedures. EasySort makes warehouse management more efficient and dependable by meeting the growing demand for quicker, better-organized logistics as international trade and e-commerce expand (International Centre for Trade Transparency, 2023).

The easy-to-use smartphone app from EasySort provides precise sorting instructions by scanning the QR code of each item. In addition to reading the encoded data, it recognizes the colour of the QR code, which denotes the type of delivery. Its automatic, clear instructions boost staff confidence and save recruit training time. EasySort improves customer

satisfaction by reducing sorting errors and expediting processing to produce faster and more dependable deliveries. These enhancements increase supply chain dependability, which is critical for preserving trust and competitiveness in the fast-paced global market of today.

2. PROBLEM STATEMENT

2.1 Manual Parcel Sorting is Too Slow

During peak delivery periods, such as festive seasons or online sales events, the number of incoming and outgoing parcels can surge dramatically. Manual sorting during such times becomes overwhelmed, resulting in significant processing backlogs. Workers often need to double their efforts to meet deadlines, which leads to fatigue, reduced accuracy, and a higher probability of human error (Gordon, 2024). Furthermore, the time taken to interpret addresses or shipping types for each parcel consumes valuable minutes that could be saved with an automated system.

This inefficiency doesn't just affect sorting; it slows down the entire delivery chain. Late sorting results in missed delivery windows, increased customer complaints, and potential financial penalties from service level agreements. Manual sorting also requires more manpower to achieve acceptable speed, raising labour costs and creating dependency on human availability and consistency.

2.2 Fragile and Oversized Parcels Are Mishandled Without Proper Sorting

Fragile parcels, such as electronics, glassware, or sensitive instruments, require extra care. These items need to be clearly marked, isolated from heavy or sharp objects, and stored in a way that minimizes risk of damage. In a manual system, such parcels are often handled without the necessary caution because the identifiers (like stickers or notes) can be missed, misread, or fall off. As a result, fragile items are more likely to be dropped, compressed under heavier parcels, or stacked incorrectly.

The absence of a smart sorting system means that fragile and oversized parcels are not only mishandled but also misplaced, as their unique requirements are not logged or communicated clearly through the system. This contributes to increased returns, complaints, and lost revenue for courier services (Tomek, 2024).

3. OBJECTIVE

EasySort Apps aims to enhance warehouse efficiency, minimize mistakes during the sorting process, decrease time in the identification of goods, and increase customer satisfaction.

4. NOVELTY

EasySort App is a special application that is created to enhance warehouse efficiency in the warehouse by allowing employees to follow a marked, colour-coded path, which may shorten walking distances, save time finding products by optimising pick routes.

EasySort App is uniquely helpful in minimizing mistakes during the sorting process in the warehouse, as it enables employees to quickly identify item classifications, storage areas, and priority levels. This app may reduce human errors such as mistaken picks and misplaced goods. Hence, the rework and time spent fixing errors are reduced when there are fewer faults.

EasySort App may increase customer satisfaction as there are fewer mistakes during the sorting process and decrease the possibility of sending it to the wrong locations. The goods pass through the system more quickly as warehouse operations become more efficient and well-organized, resulting in on-time delivery. In the end, this degree of efficiency guarantees that the order is processed and delivered without unnecessary delays. Consequently, it results in fewer complaints and returns and improves the overall customer experience.

5. COMMERCILIAZATION POTENTIAL

The need for effective, transparent and sustainable logistics solutions is greater than ever as global trade expands. To handle growing logistical issues, businesses are quickly implementing automated warehouse technologies (The Business Research Company, 2025). To meet this high demand, EasySort has developed a workable and affordable solution that uses colored QR codes to increase sorting speed, lower error rates and provide real-time shipment tracking. Sustainability objectives are further supported by its capacity to reduce paper usage and improve operational effectiveness.

EasySort is specifically designed for target customers such as logistics firms, warehousing companies, and international trade businesses. Its technological feasibility, compatibility with existing systems and scalability make it ideal for organizations seeking to digitize and streamline operations. By optimizing sorting processes and supporting efficient supply chain management, EasySort is well-positioned for commercialization in today's high-volume and data-driven logistics sector.

6. BENEFIT TO COMMUNITY

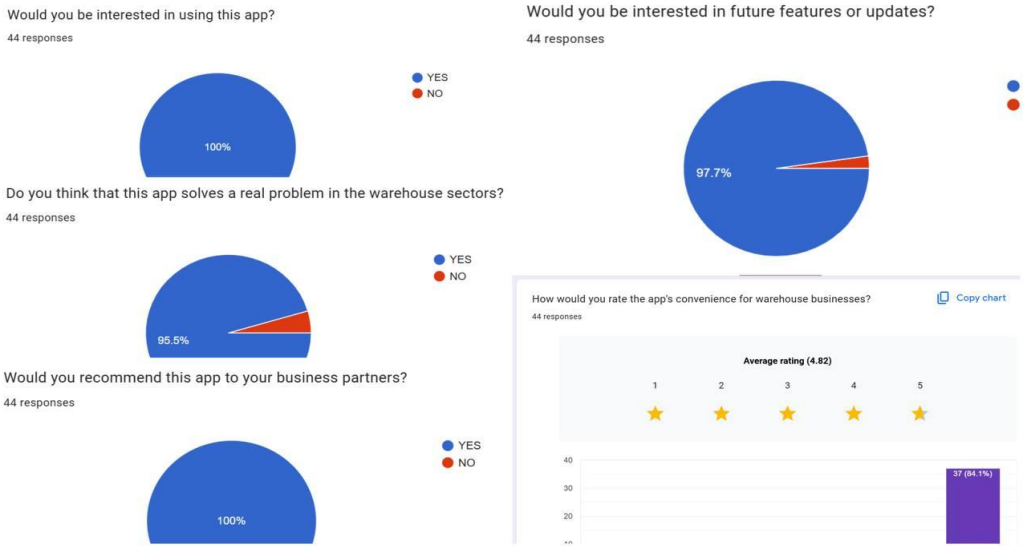
One of the main benefits of EasySort is its devotion to environmental sustainability. Traditional ways of sorting items frequently include unnecessary handling, repackaging, shipping and sorting errors, which leads to high carbon emissions and packaging waste (Jayasuriya, 2023). EasySort application helps to reduce these inefficiencies by making operations more efficient and eco-friendlier because this application helps warehouse workers to easily classify where the item is stored and where it will be shipped by just scanning the coloured QR codes provided on the items. This not only enables businesses to reduce their environmental footprint, but it is also associated with the global sustainability goals by allowing operations in warehouses to be more eco-friendly.

EasySort not only contributes its benefits to the environment, but it also helps to enhance job opportunities. Instead of having repetitive manual and physically hard labour, the application opens warehouse workers' shifts to more skilled, tech-focused duties. This shift in workers' duties boosts workplace safety and enhances long-term employability through

allowing employees with modern and in-demand skills. The enhancement in workers' growth is critical in today's continuously changing phase in the logistics industry (*Continuous Growth : The Importance of Training, Development and Engagement in the Supply Chain*, 2024).
Furthermore, EasySort allows warehouse firms a more competitive advantage. Firms can meet client requests more efficiently and with consistency because of the app's ability to speed up the process and accuracy of fulfilling orders. This means that the companies can boost customer satisfaction and brand reputation.
Lastly, EasySort contributes to the economic growth it is fostering more powerful industrial and economic growth by strengthening supply chain networks and enhancing resilience to operations. EasySort's implementation into the warehouse operations enable a more agile, efficient and technologically advanced industry and boosting not just the businesses themselves but also the overall company.

7. FEEDBACK FROM COMMUNITY

We used Google Forms to run surveys to get feedback on our application, guaranteeing an in-depth knowledge of it. The total number of respondents for this survey is 40. From the survey, 100% of participants indicated that they are interested in using the EasySort App and agree that this app helps in terms of saving time and would recommend this app to their business partners. 97.5% of participants agree that EasySort App may solve a real problem in the warehouse sector and would be interested in future updates for the app.



8. CONCLUSION

The EasySort App offers a significant improvement in the logistics and warehouse industries where speed, accuracy, and sustainability are essential to the business success. The app indicates that typical warehouse operations struggle from many problems resulting from their

rely on manual sorting methods. These out-of-date practices cause delays, misplacement of the parcel and continuously handling errors.

The app's goals are to improve efficiency, minimize errors and increase customer satisfaction. EasySort's features allowing a novel approach to the warehouse logistics. The color-code QR system reduces the worker's walking time, fasten up the item identification and effectively categorizes products according to the delivery urgency, fragility and size and other characteristics.

Furthermore, the app allows a high potential for commercialization. EasySort's association with modern logistical needs, economic viability and environmentally friendly operation establish it as an appealing option in rising market. This method promotes paperless sorting, which reduces waste and emissions while increasing warehouse efficiency and transparency. Its appeal extends across variety industries, including logistics businesses, export hubs and e-commerce businesses that are searching to optimize their operations. From the community feedback, Many of the respondents agreed that EasySort addresses a solution for the real problem in the warehouse management.

To summarize, EasySort is more than just an innovative application, it is also a brilliant solution that modernizes the warehouse operations where it helps to increase the productivity of the workers, lowering chances of errors from happening and promotes wider economic and environmental goals. The implementation of the app is an important step towards establishing a more efficient, agile and sustainable supply chain economy.

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