

A System and Method for Shipment Monitoring and Tracking Using Intelligent Box

Innovation registration number
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Introduction

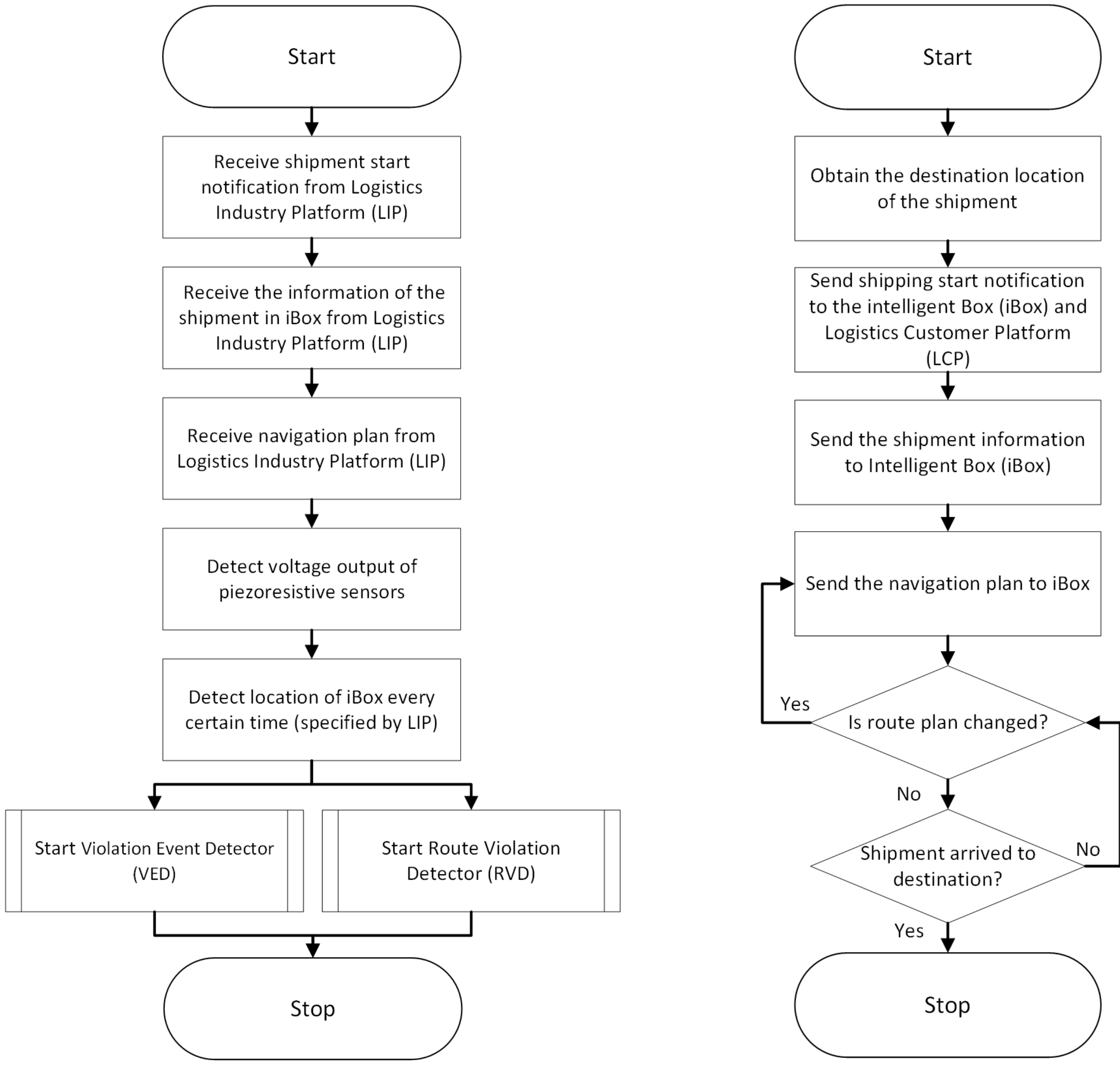
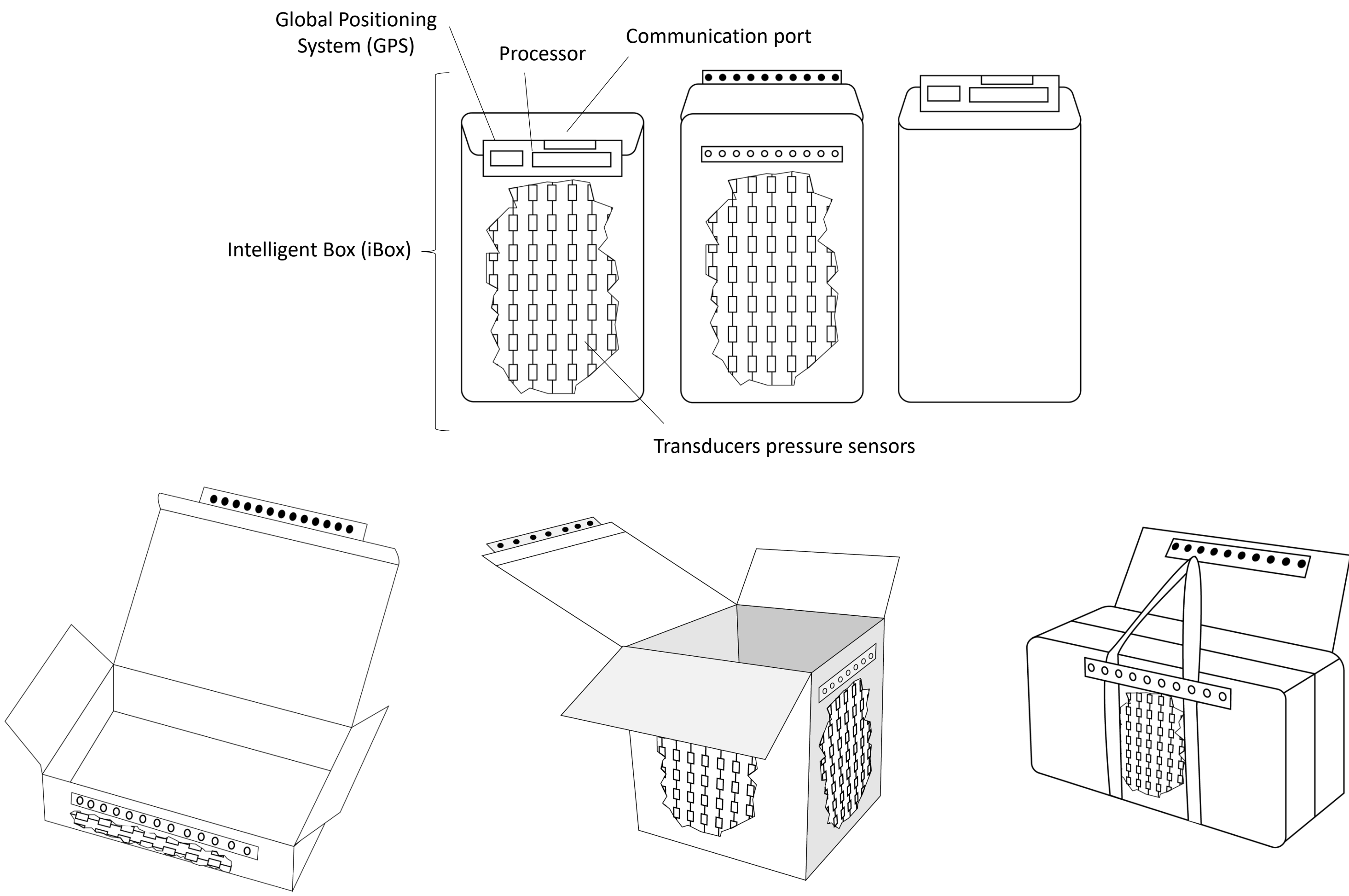
- The logistics sector plays a crucial role in the global economy by facilitating the movement of goods and materials across borders and between businesses and consumers.
- Saudi Arabia has set a goal to become a leading logistics hub by 2030 as part of its Vision initiative.
- However, to achieve this, logistics enterprises must be responsive and adaptable to overcome uncertainties in transportation conditions.
- Therefore, ensuring service quality in the logistics industry through measures such as minimizing damage and loss of goods.
- Hence, an intelligent box for shipping high price objects is required to detect damage and loss during transportation, particularly for high-price or fragile cargo, in logistics procedures.



Objectives

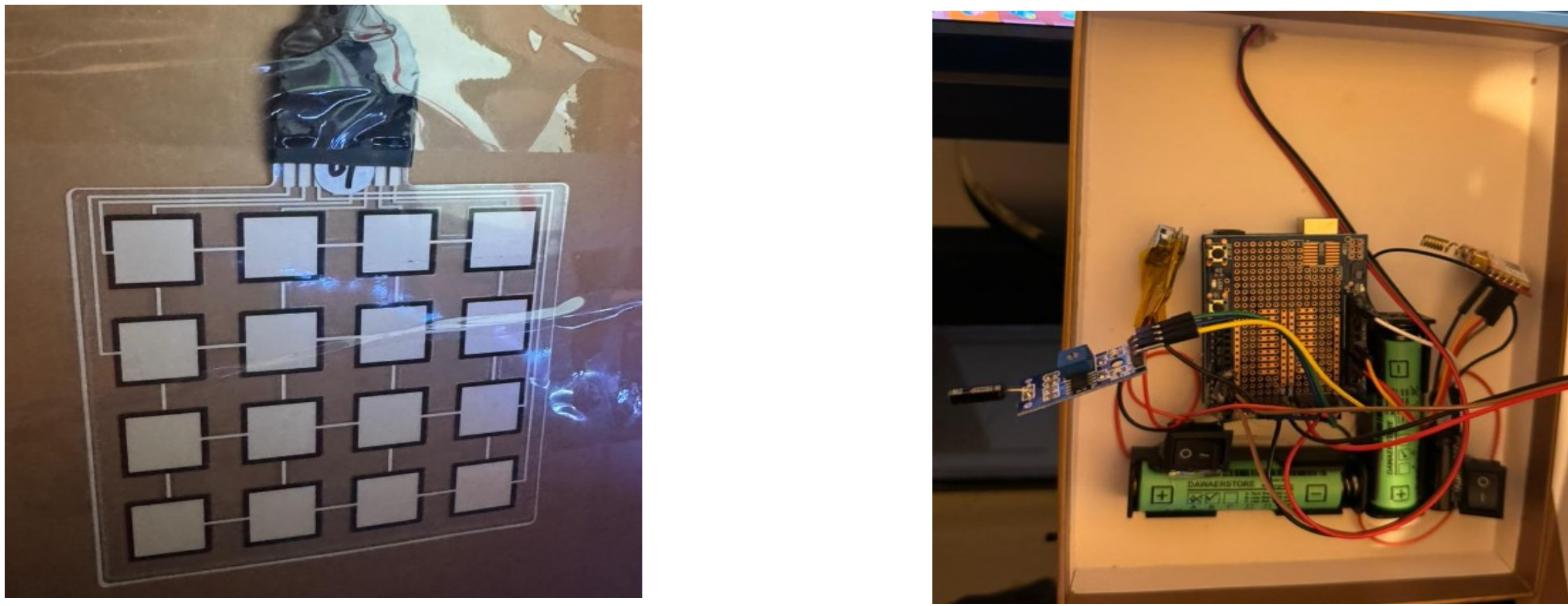
- To ensure the safe delivery of goods such as high price and/or fragile goods.
- To detect if a shipment has been heavily dropped or opened.
- To detect if a shipment is not following the planned shipping route specified by the courier system.

Methods



The system flow on iBox. The system flow on Logistics Industry Platform

Proof of Concept



Prototype of intelligent Box (iBox)

Conclusion

The present invention introduces an intelligent shipping package monitoring system that integrates condition sensing, route verification, and energy-efficient data processing within a unified architecture. By combining flexible and rigid sensor circuits, machine-learning-based violation detection, and adaptive communication mechanisms, the system enables reliable detection of handling violations and route deviations while minimizing power consumption.

Through seamless interaction between the intelligent Box (iBox), the Logistic Industry Platform (LIP), and the Logistics Customer Platform (LCP), the invention enhances shipment security, operational transparency, and decision-making across logistics stakeholders. The modular and scalable design allows adaptability to various logistics environments, making the invention a practical and effective solution for smart and secure shipment monitoring.

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