

WORK SYSTEM DESIGN

[GROUP 3]

VR PROJECT



Team Members



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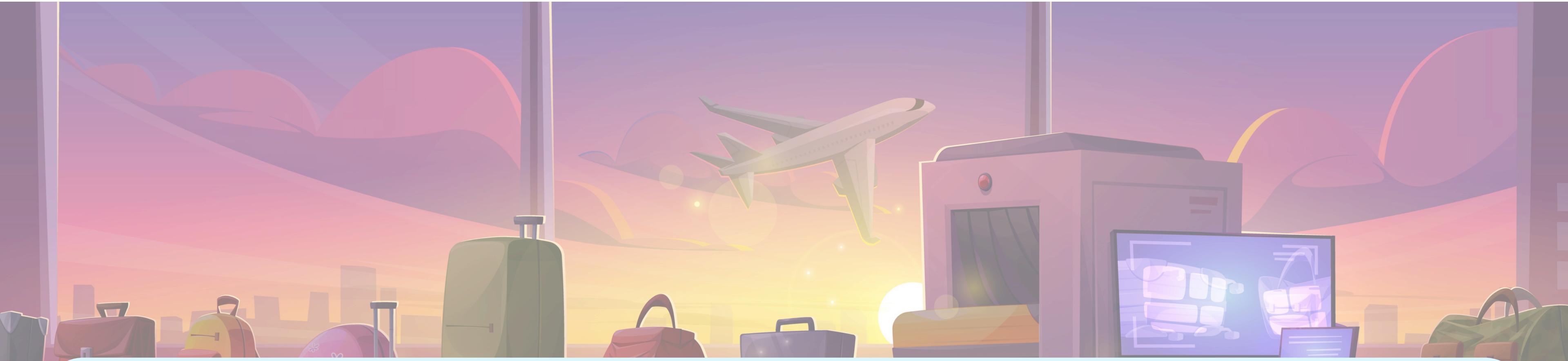
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Problem statement



The current airport luggage system is inefficient, costly, and prone to errors and delays. The main objective is to design a new system that can reduce the waiting time for passengers to receive their luggage, increase the security and reliability of the system, and optimize the use of resources and space.

Basics



Efficient airport operations require a **well-designed baggage handling system** that fits the terminal's **scale and activities**. By carefully evaluating these factors, the airport can establish a system that optimizes efficiency and delivers a great experience for passengers.

Size of Airport	No.of Terminals	No.of Carousels per Terminal
Small	1	1 or 2
Medium	1 or 2	3 - 6
Large	2 - 4 or more	more than 10

**We mainly focus on
small and medium Airports**

Current System



The current system consists of a **conveyor belt network** that transports the luggage from the check-in counters to the baggage sorting area, where they are scanned and sorted by destination. Then, the luggage is loaded onto carts and transported by tug vehicles to the aircraft. For arriving luggage, the process is reversed.

The system relies on



Manual handling



Barcode tags



Human operators for identification and tracking

Problems



- Long Waiting Times:
 - Passengers experience prolonged waiting times to receive their luggage, particularly during peak hours, flight delays, or diversions.
- Risk of Loss and Damage:
 - High risk of luggage loss, damage, theft, or misrouting due to human errors, tag failures, or system breakdowns.

Problems



- Operating Costs and Environmental Impact:
 - The current system incurs high operating costs and environmental impact due to the use of tug vehicles, fuel, and labor.
- Low Utilization of Space and Equipment:
 - Space and equipment are underutilized due to the fixed layout and capacity of the conveyor belt network and the baggage sorting area.

Solutions



- Conveyor Belt Speed Optimization:
 - Increase the speed of conveyor belts for quicker luggage delivery.
 - Enhances efficiency and reduces waiting time for passengers.
- RFID Tracking System:
 - Implementation of RFID tags in baggage handling to automate tracking.
 - Ensures precise movement of luggage, reduces mishandling risks, and provides real-time updates to passengers for prompt interventions

Solutions

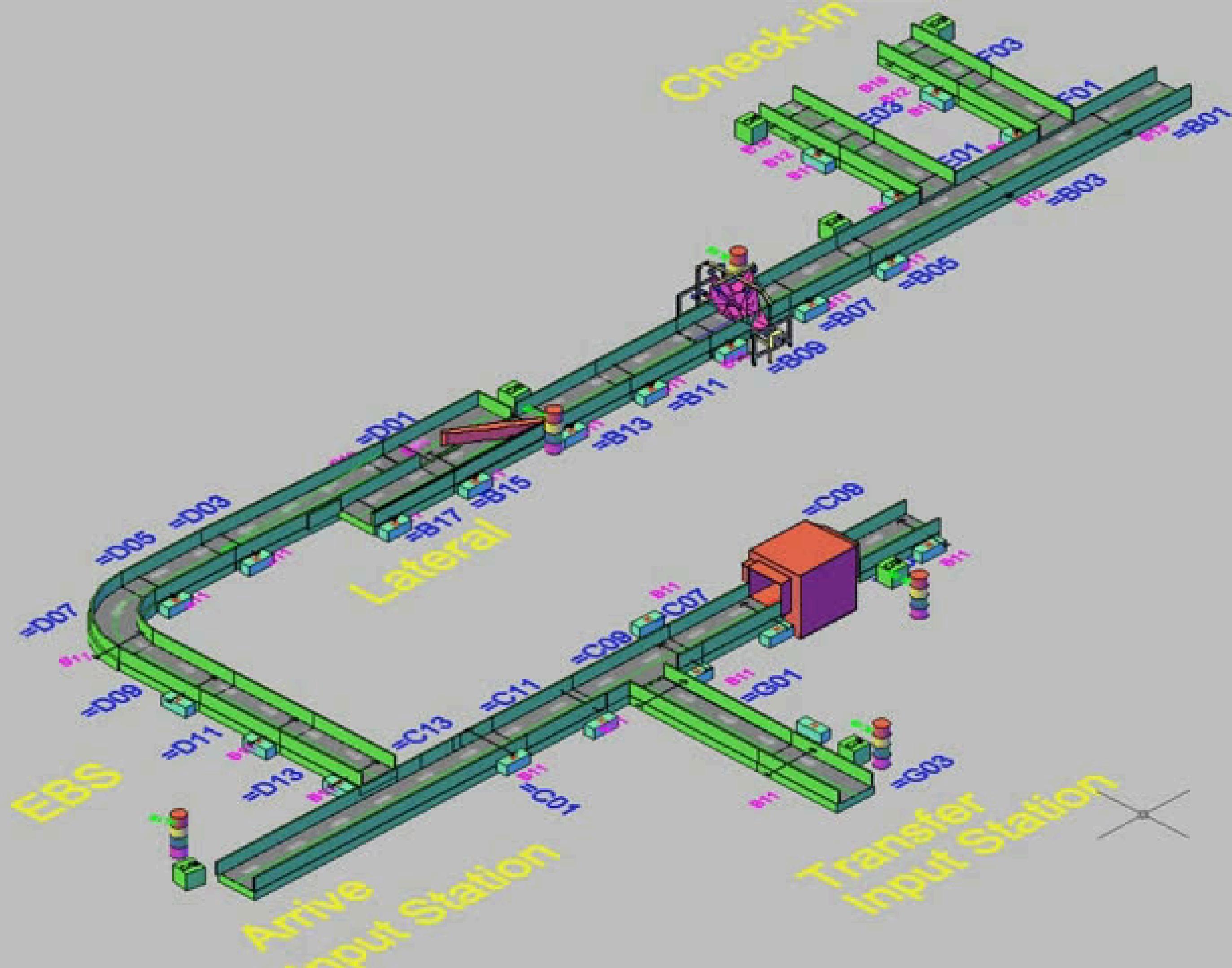


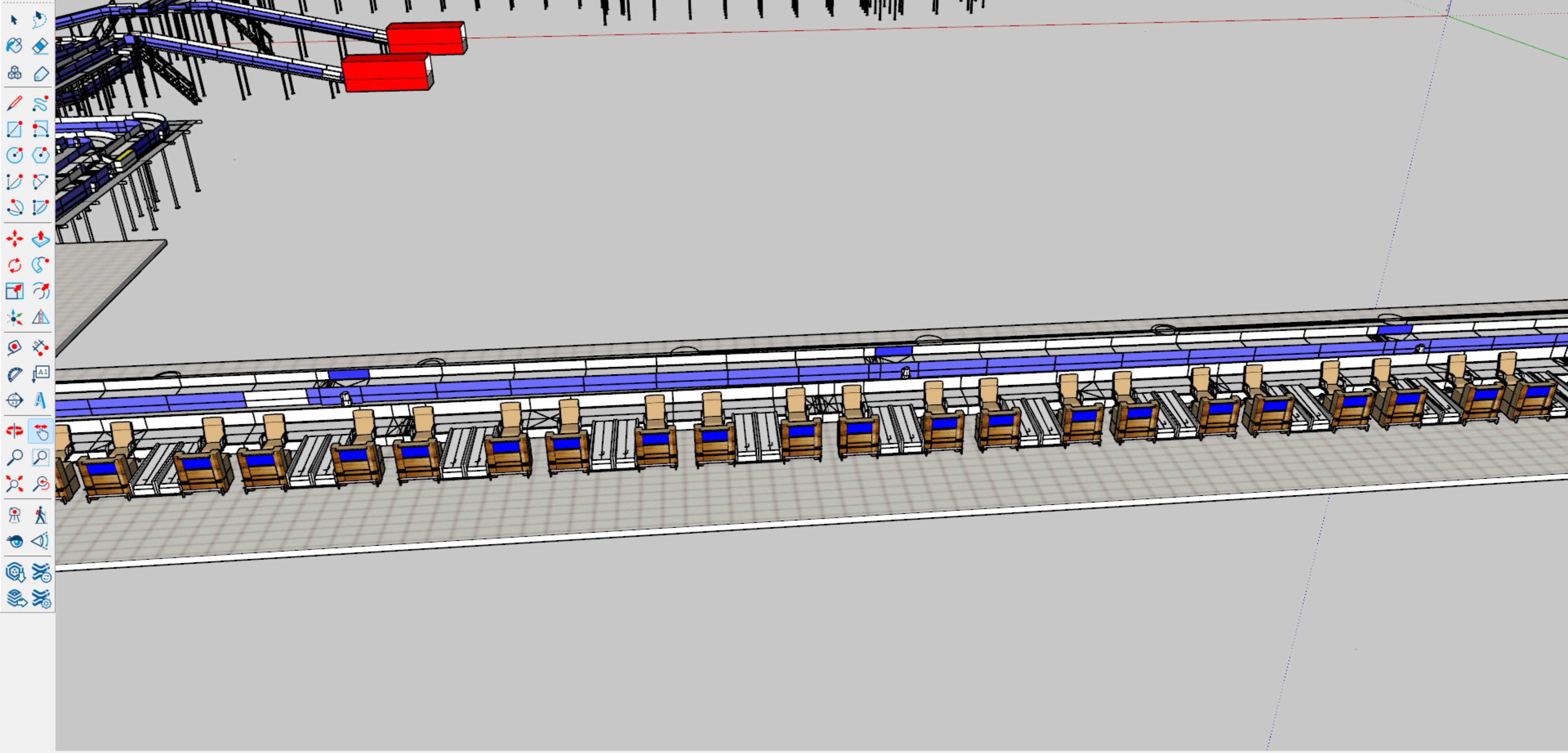
- RFID Tracking System:
 - RFID tags have a higher data capacity, enabling detailed information storage and dynamic updates throughout an item's lifecycle.
 - RFID systems can read multiple tags simultaneously, enhancing efficiency in high-volume operations.
- Automated Alert System:
 - Implementation of an alert messaging system to notify passengers if luggage remains uncollected for a specific duration.
 - Improves passenger awareness and reduces the risk of misplaced luggage.

Implementation

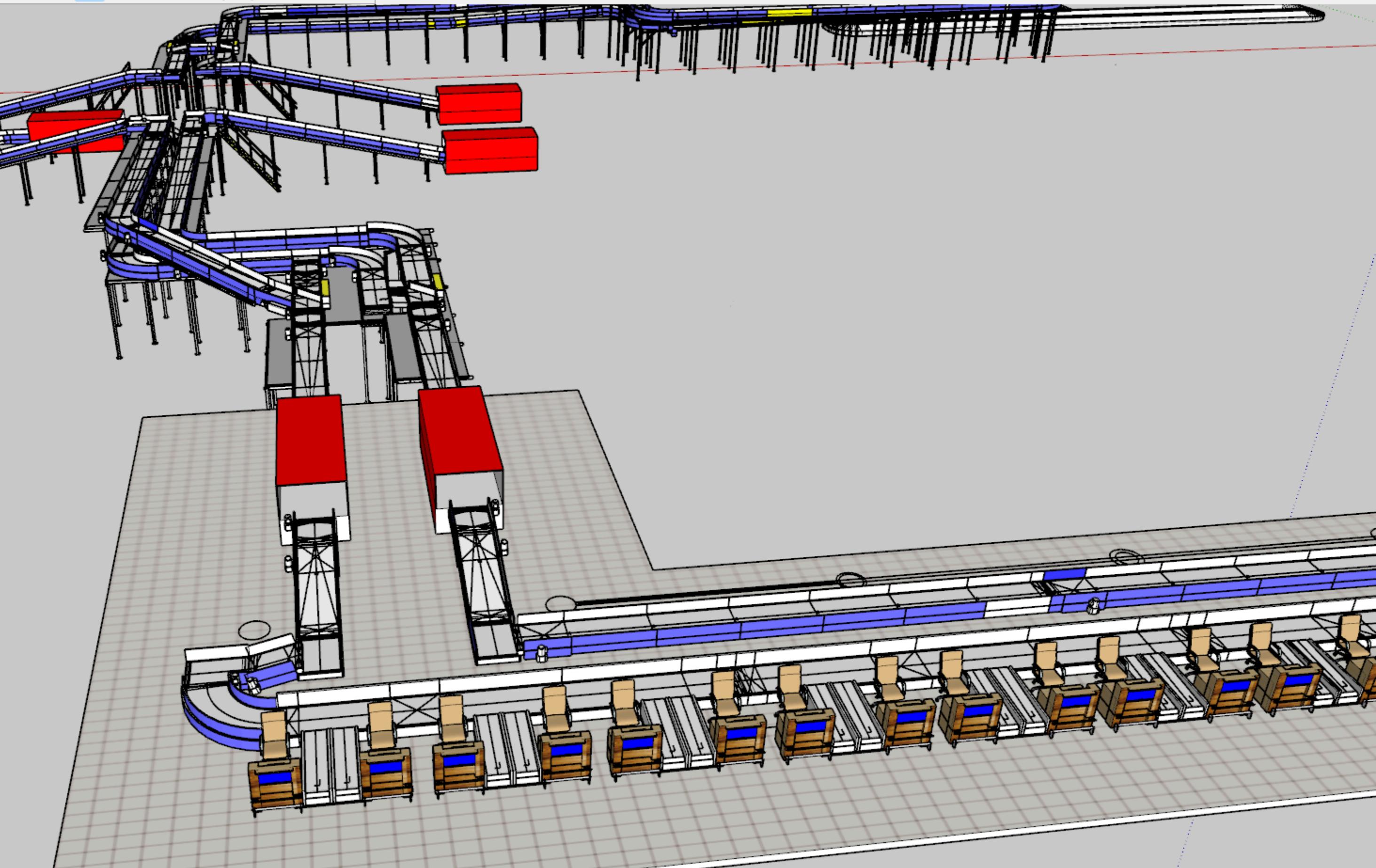
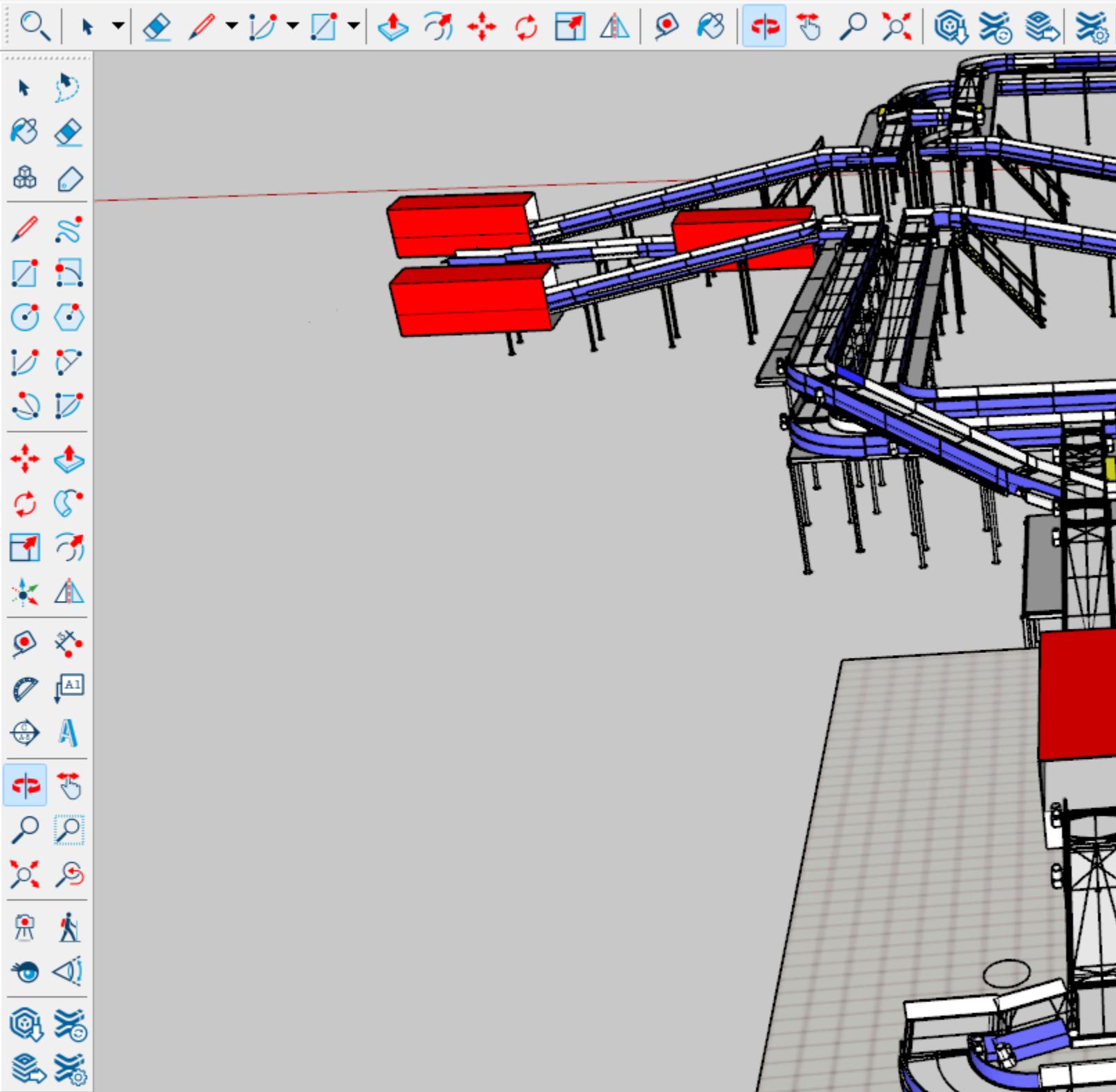


- Structuring the design properly to minimize the probability of failure and maximize the efficiency.
- Setting up an audio and LCD/LED display for announcing the name of the passenger to collect their luggage after a certain time.
- Application to notify the passenger about his luggage.

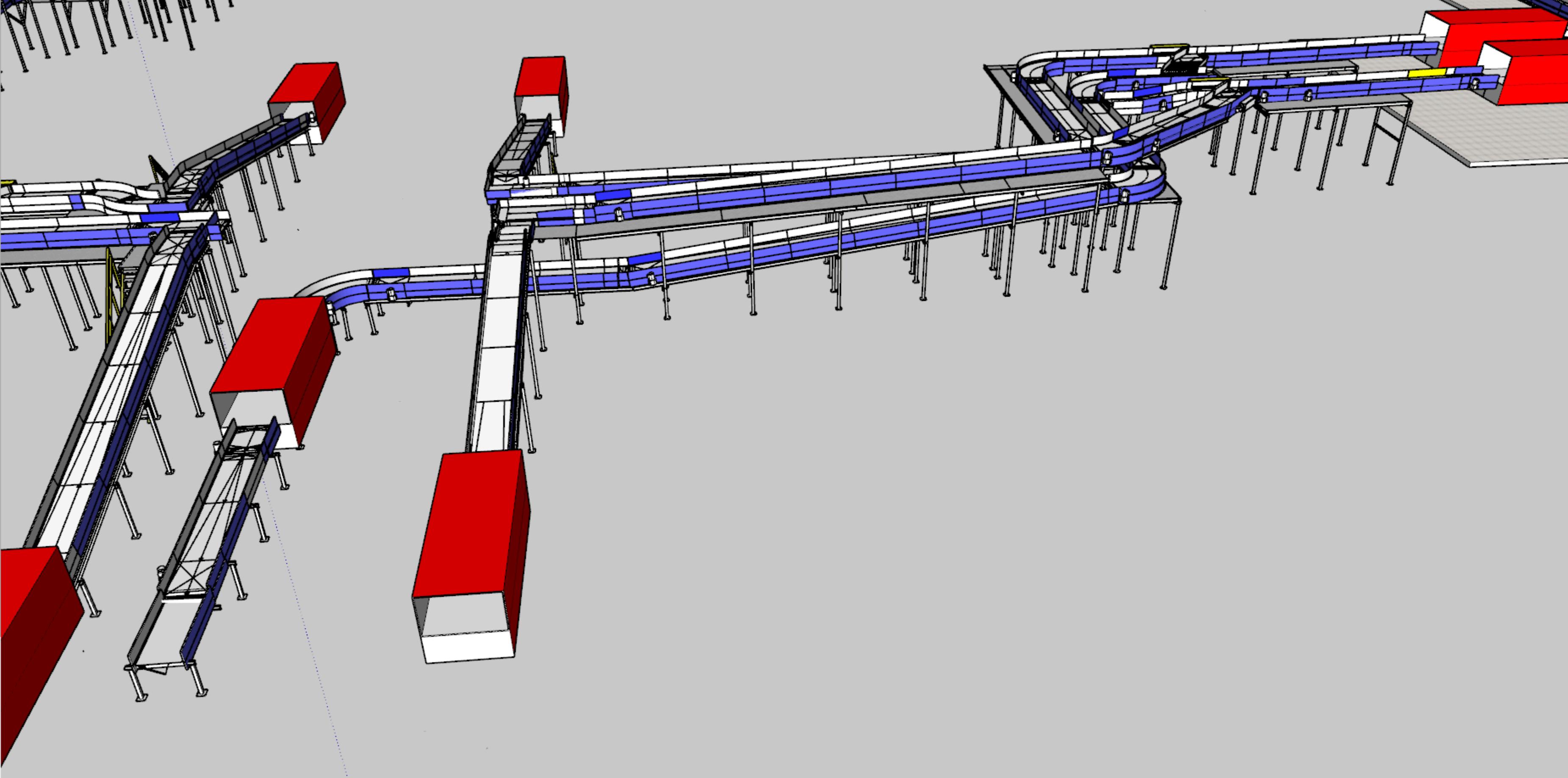




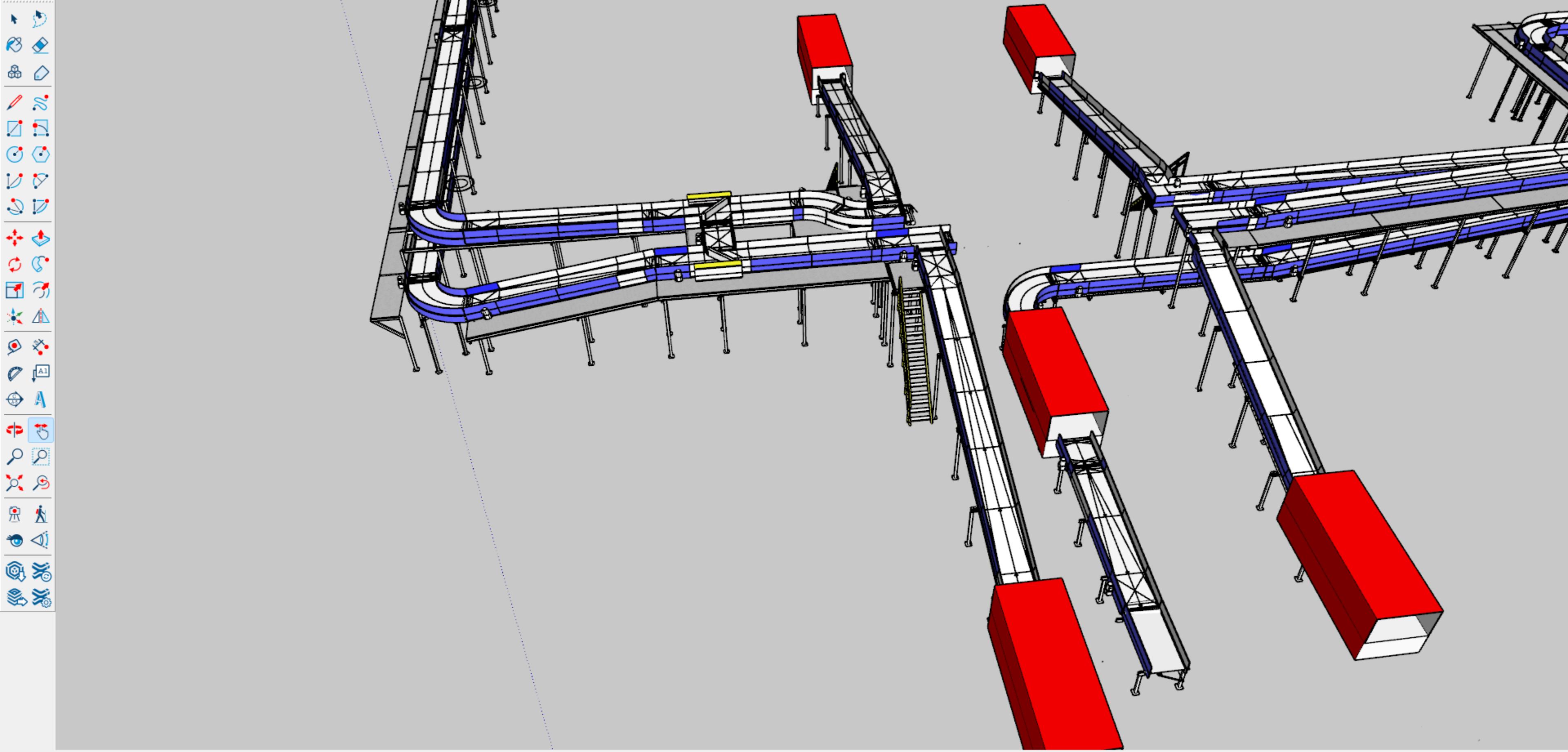
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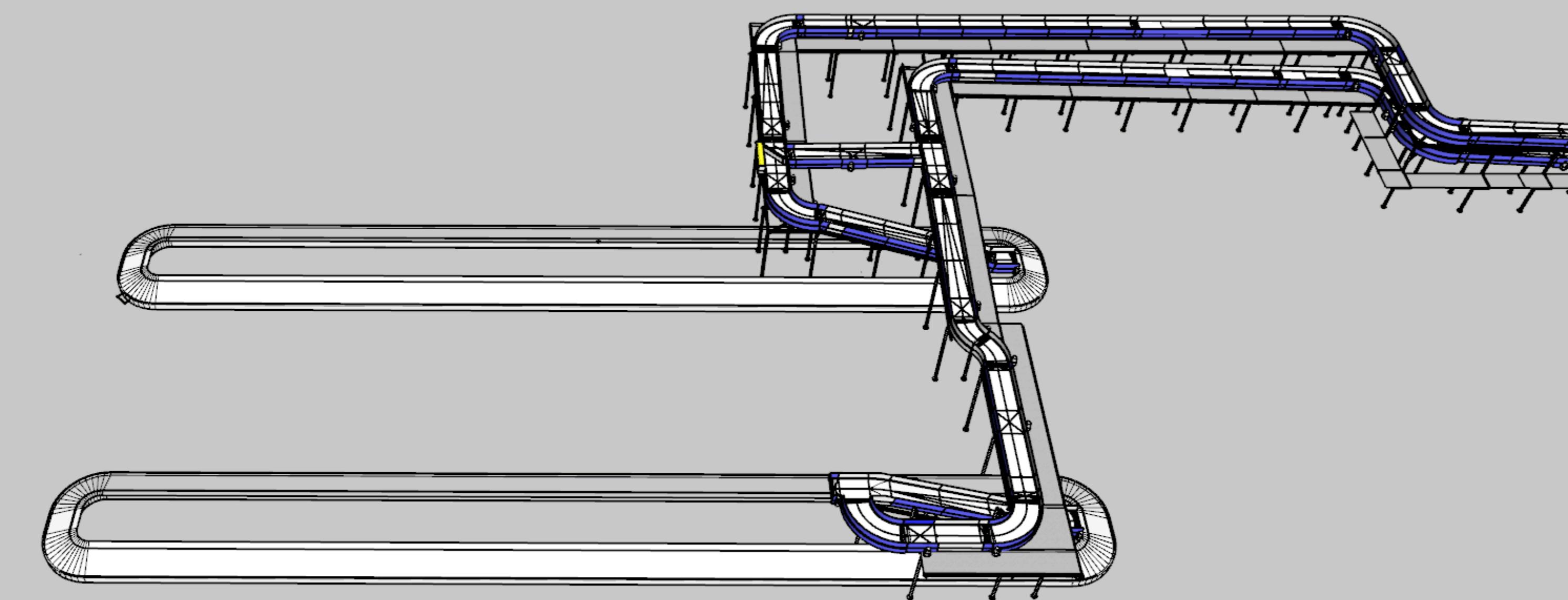
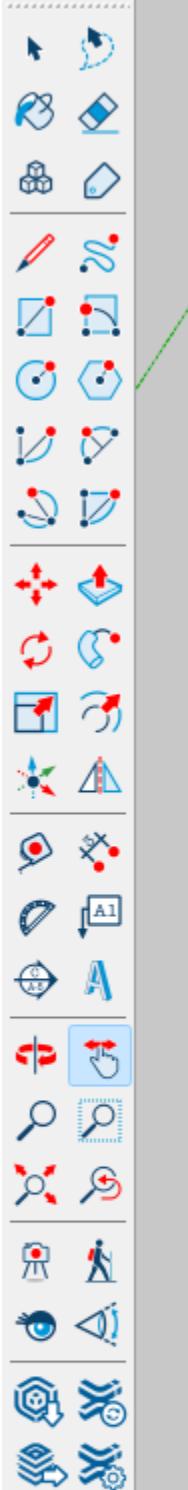
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Drag in direction to pan



Drag in direction to pan



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Benefits



- Enhanced efficiency in baggage handling.
- Reduced mishandling risks and passenger inconvenience.
- Improved travel experience and customer satisfaction.

Thank You

