

STACKER CRANE & T-PORT ALIGNMENT

By Adam Lim

KEY MEASUREMENTS & THEIR PURPOSE

1. Fork Center to T-Port Center Distance

- Checks if the AGV's QR code aligns with the Stacker Crane fork when extended.
- Negative values: Fork is left of center.
- Positive values: Fork is right of center.

2. Crane Move Center to T-Port Distance

- Ensures the AGV's QR code aligns with the crane before extension.
- Determines whether misalignment is due to the QR code or crane.

3. D (Down) & U (Up) Position Fork to T-Port Distance

- D Position: Distance should be 25-40mm.
- U Position: Distance should be 95-105mm.
- Identifies if adjustments are needed for the crane or T-Port flooring.

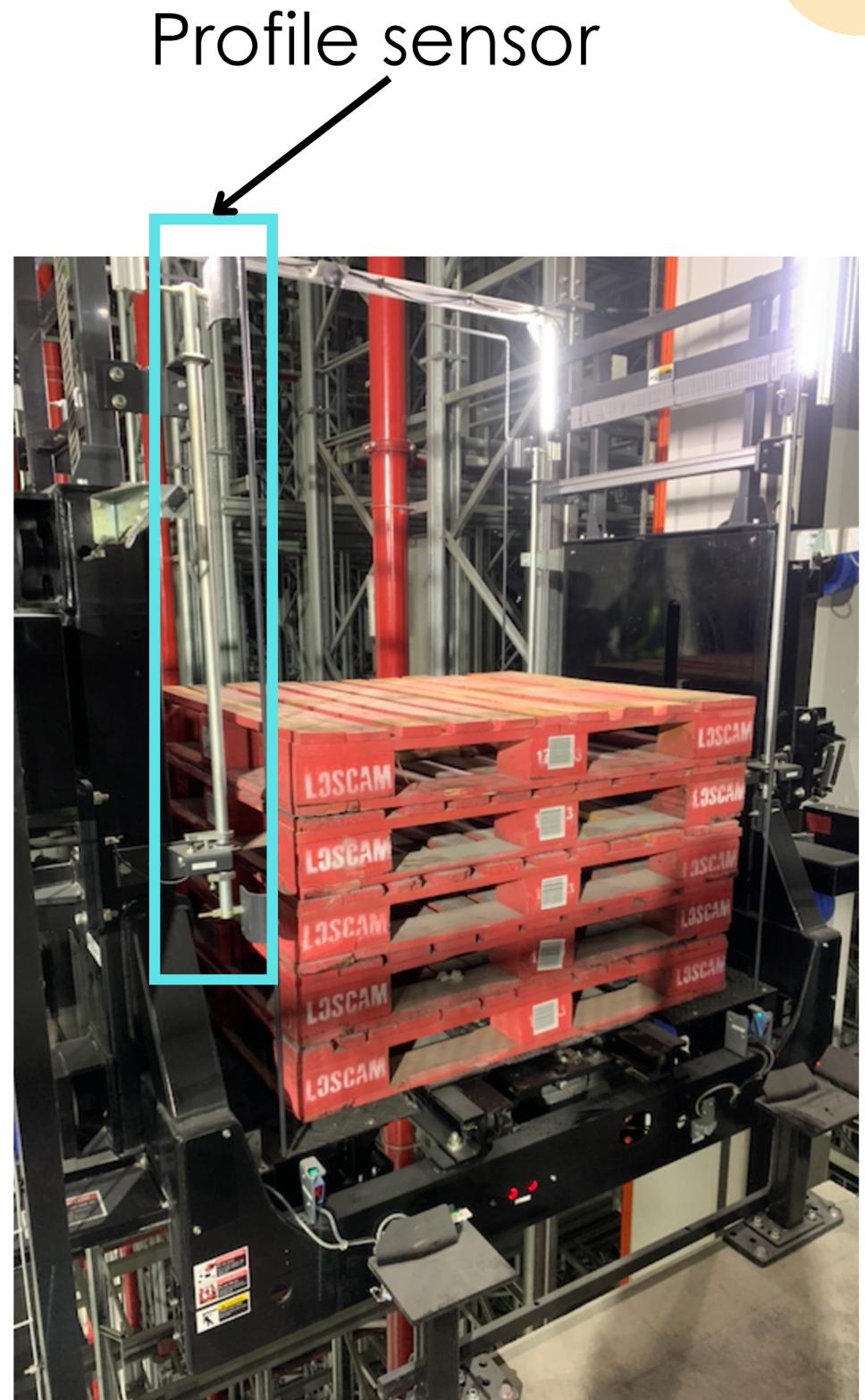
DATA COLLECTION

Floor Unit	Crane No.	T Port No.	D Position Fork To T Port Distance Front Left	D Position Fork To T Port Distance Rear Left	D Position Fork To T Port Distance Front Right	D Position Fork To T Port Distance Rear Right	U Position Fork To T Port Distance Front Left	U Position Fork To T Port Distance Rear Left	U Position Fork To T Port Distance Front Right	U Position Fork To T Port Distance Rear Right	Fork Center To T Port Center Distance	Crane Move Center To T Port Distance
East GF	21	0214	38	31	36	29	99	101	99	106	4	2

WHY THIS IS IMPORTANT?

- ✓ D & U Position Fork to T-Port Distance
 - Helps identify which T-Ports need adjustment.
 - Ensures pallets is placed accurately onto the base.

- ✓ Fork Center to T-Port Center Distance
 - Ensures the Stacker Crane fork is centered on the pallet.
 - Prevents collisions with profile sensors or oversize sensors.
 - Reduces need for manual intervention.



WHY THIS IS IMPORTANT?

- ✓ Crane Move Center to T-Port Distance
 - Ensures AGV follows correct alignment for accurate pallet placement.
 - Prevents misalignment that can cause pallets to snap, tilt, or fall.
 - Helps determine if adjustments are needed for:
 - QR code placement
 - Stacker Crane alignment
 - Floor leveling for T-Ports

pallet misaligned
on T-Port stand



KEY CONSIDERATIONS

- If the AGV QR code is misaligned, the pallet placement will be off, potentially causing instability and manual intervention.
- If the stacker crane is misaligned, pallets may be placed incorrectly, leading to delays or sensor-triggered stoppages.
- If T-Port heights vary significantly, adjustments must be made either to the crane positioning parameters or the flooring.

DATA ANALYSIS (JUPYTER NOTEBOOK)

Jung028/T-Port-Predictive-Maintenance



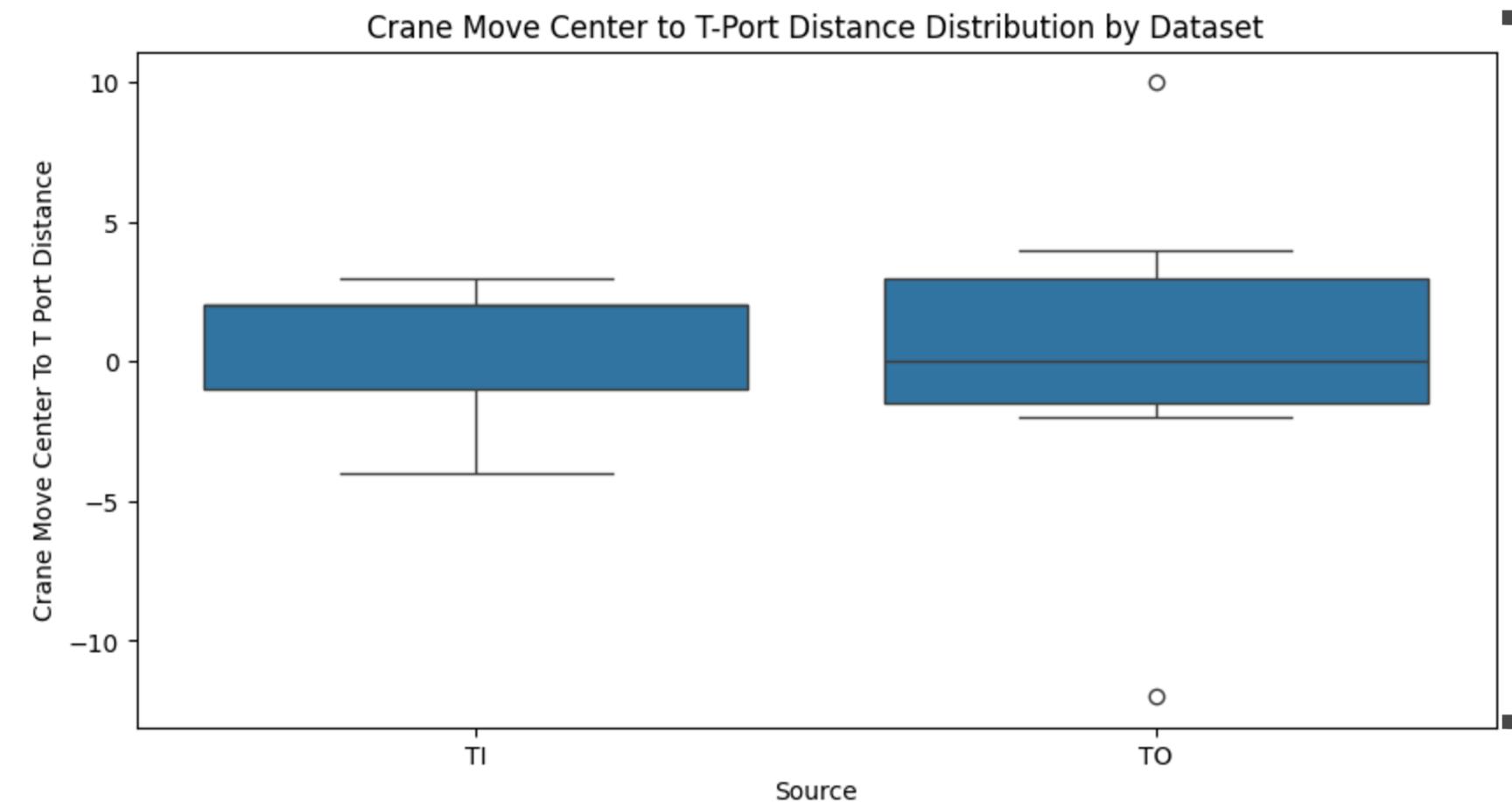
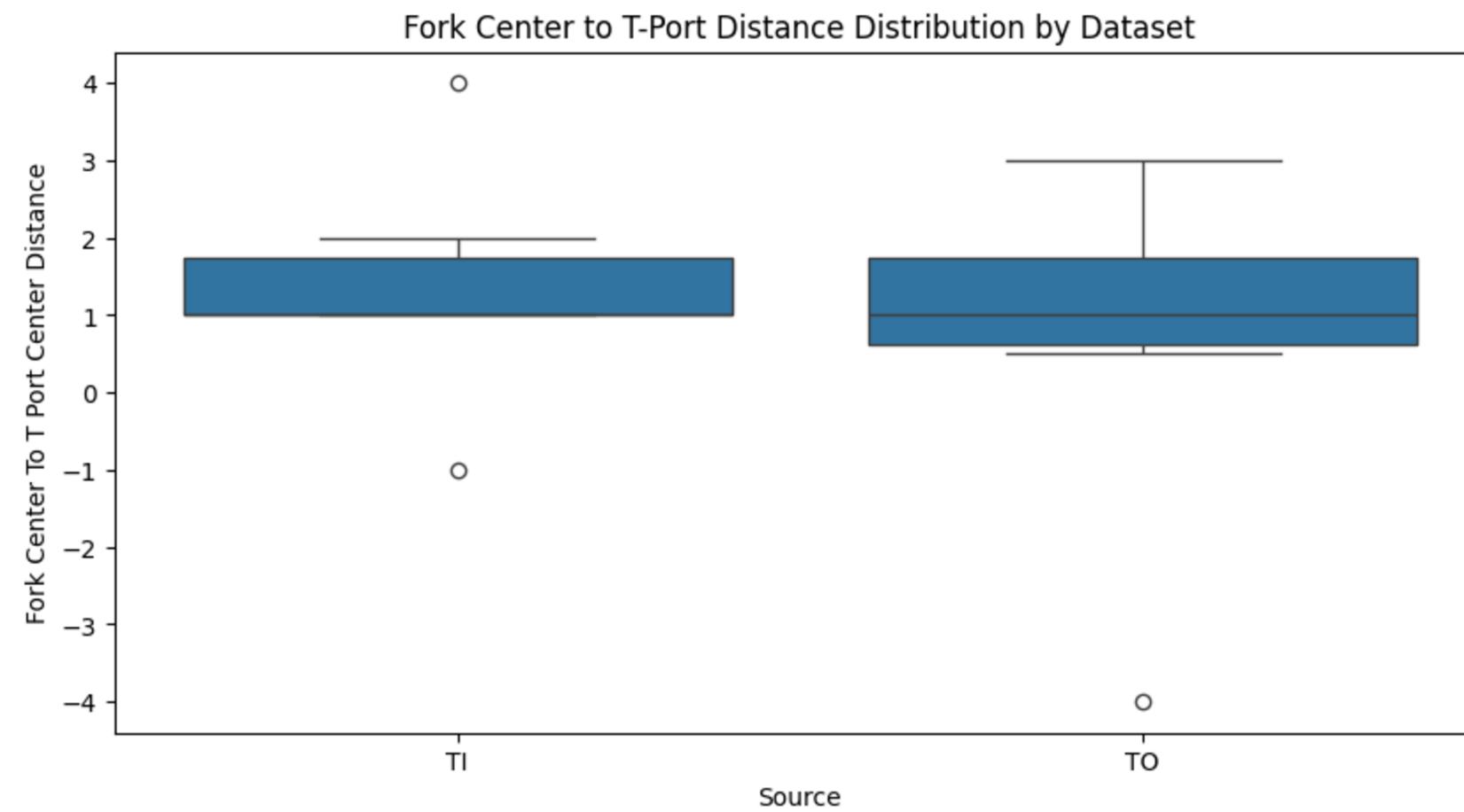
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Contributors Issues Stars Forks

[GitHub](#)

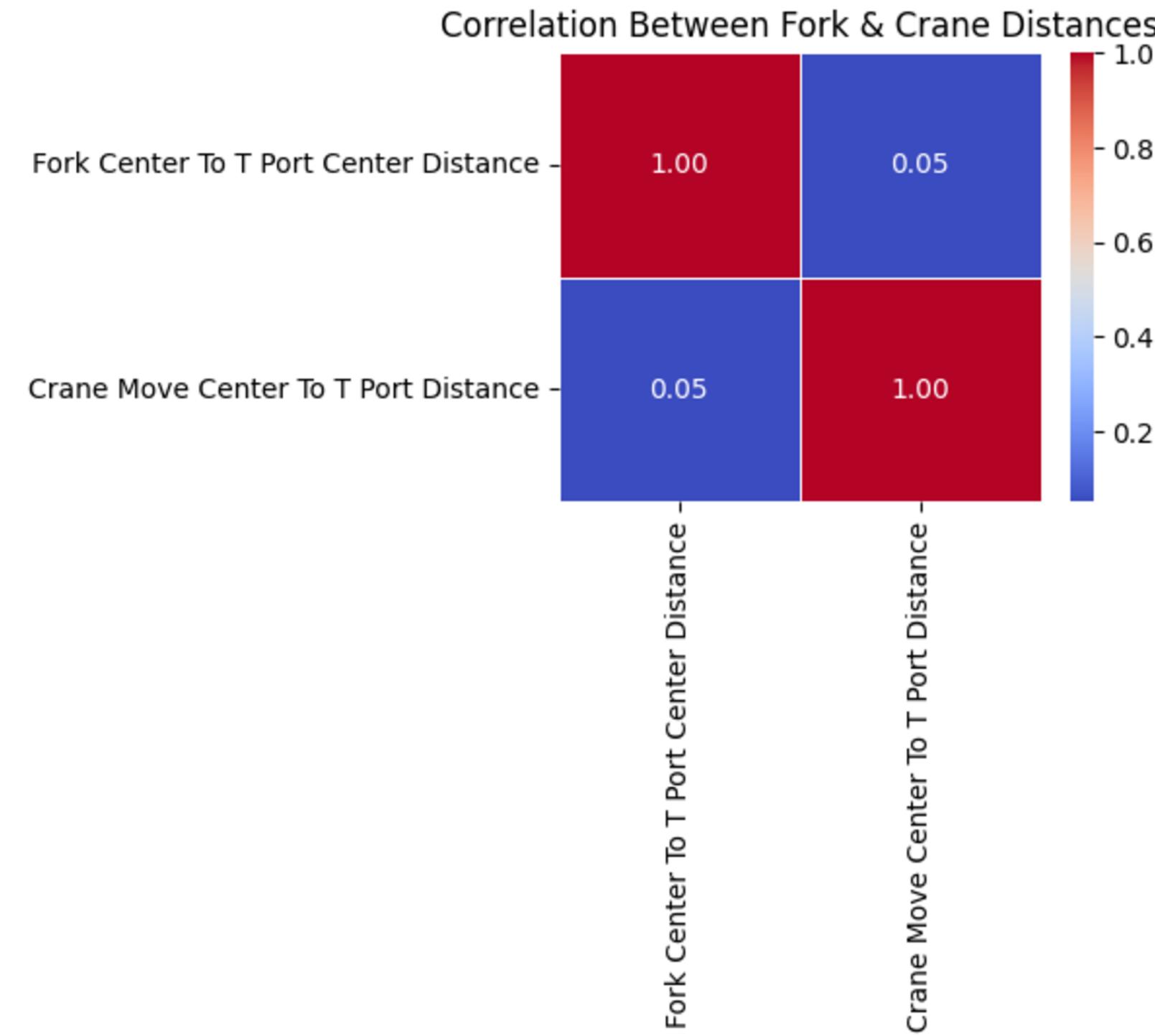


BOX PLOT



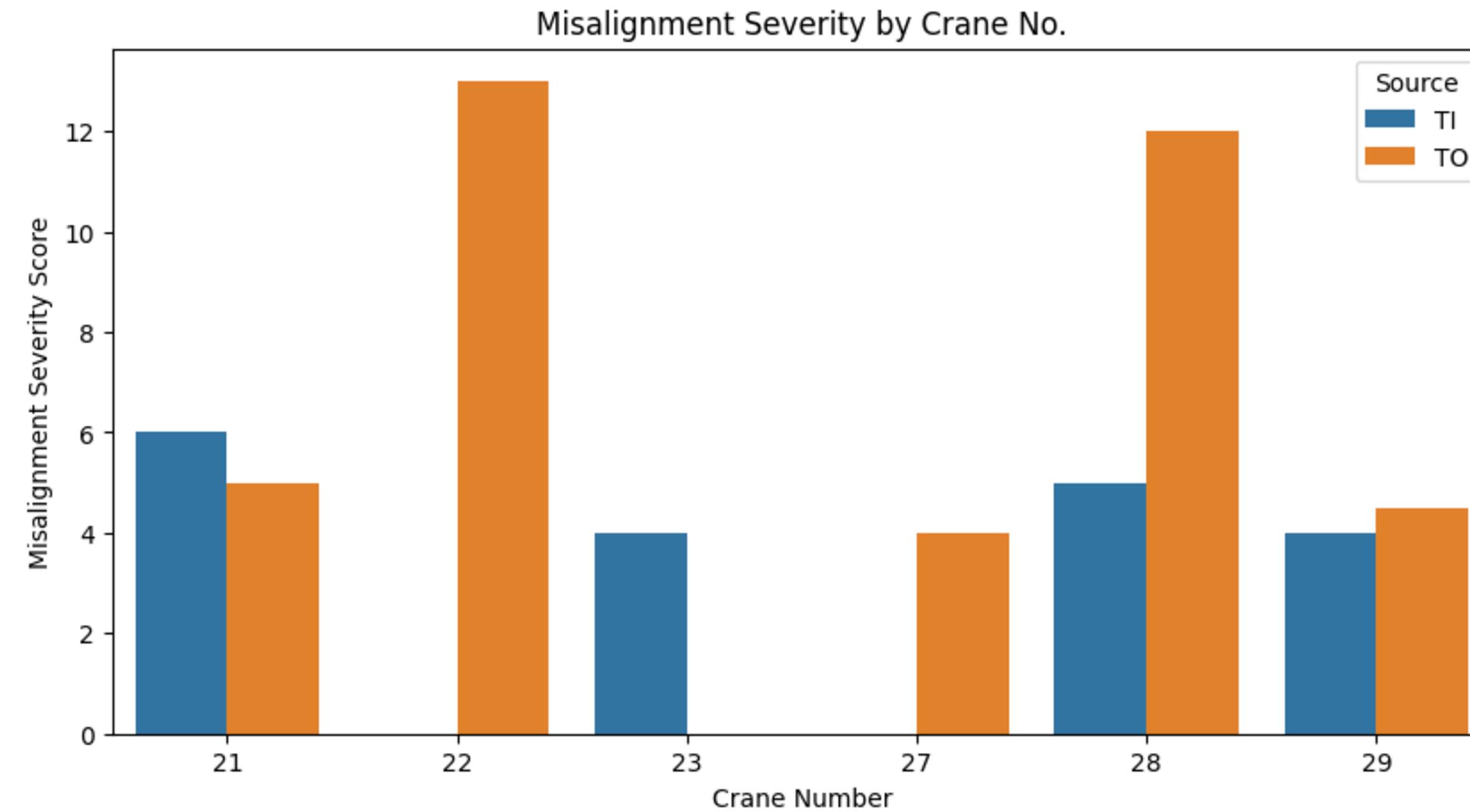


CORRELATION MATRIX





MISALIGNMENT SEVERITY



INTERPRETATION & KEY TAKEAWAYS

Issue	Cause	Actions to Make
📌 QR Code Misalignment	AGV misaligned with crane	Realign the QR codes
📌 Crane 22 & 28 Misalignment	Positioning deviation	Contact Muratec to adjust parameters of the stacker crane positioning
📌 T-Port Height Variations	Uneven flooring	Contact flooring supplier to grind the flooring for levelled flooring

THANK YOU