

CoE Support Case Study: **Vention**

49% Improvement in Cell Throughput





Thanks to the strong partnership between Vention and the UR CoE, we were able to quickly diagnose the problem and resolve the issue for the customer, fulfilling all project requirements promptly. By working together, the customer is now meeting all their production requirements, resulting in a successful automation project."

Mathieu Desmarais
VP of Engineering, Vention



Photo: Vention

- 49% increase in throughput
- 5.5 to 8.2 cases per minute
- 1,200 SKU's
- Full 20kg load
- 7 x UR20 based Vention palletizing cells

Business Challenges

Vention, a UR CSP (Certified Solutions Partner), was in the final stages of a multi-cobot palletizing project for their end customer. This was their customer's first robot automation project, with high visibility in the company. It was also a complex project, as the customer has over 1,200 SKUs with unique pallet patterns and physical characteristics.

The project scope included (7) UR20 palletizing cells equipped with Vention vertical lift kits, end-of-arm tooling, pallet handling automation, controls, and Vention's palletizing application software.

The project was running smoothly until it came time to palletize the 20kg load, the largest and heaviest of the SKUs. With this heavy product, throughput was maxed at 5.5 cases per minute and in addition, the cell was experiencing repeated protective stops during runtime.

Meeting the required 8 cases per minute throughput was critical for the overall project so the customer could maintain a steady production flow and remove manual labor from the palletizing process, particularly on the heavier SKUs. Success also meant additional lines that could be automated.



Photo: Vention



Working together as a team enabled us to drill down on the issues, and understand in detail how the Vention application software interacted with PolyScope.”

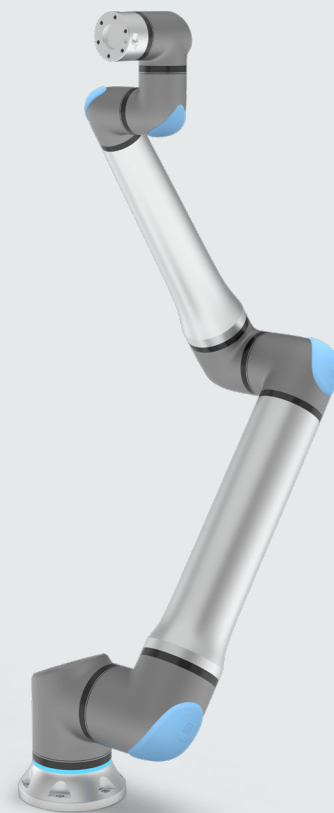
Adam Boike
Global Application Engineer

Solution

It was clear in the initial discussions with the Vention team and engineers from the Palletizing CoE in Barcelona that the robot cell was not performing to expectations. The teams began an on-site, systemic analysis of all elements of the actual system, validating any assumptions in the design process.

- The end-of-arm tool was modeled in detail, to fully understand the mass, center of mass, and moments of inertia for the empty tool and with a case.
- The current PolyScope code was tested, parameters were set for maximum payload, and a baseline performance was established with the UR Log Viewer tool.
- Testing was performed to measure the impact of adjusting the transition time variable to maximize velocity, and adjusting inertia values to actuals.
- Points were adjusted to shorten the distance between pick and post-pick positions while lengthening the travel distance from the conveyor to the pallet. This allowed the robot more time to accelerate to the target velocity.
- The code was updated based on test results and benchmarked.

Ultimately, the UR / Vention team resolved the problem after fully understanding the interaction between Vention’s palletizing software and the UR motion planner. Torque measurements were accurately quantified, allowing Vention’s path planning software to be more aggressive, running at a higher velocity and acceleration. After updating, the cell now operates at 8.2 cases per minute, meeting the required performance specs.

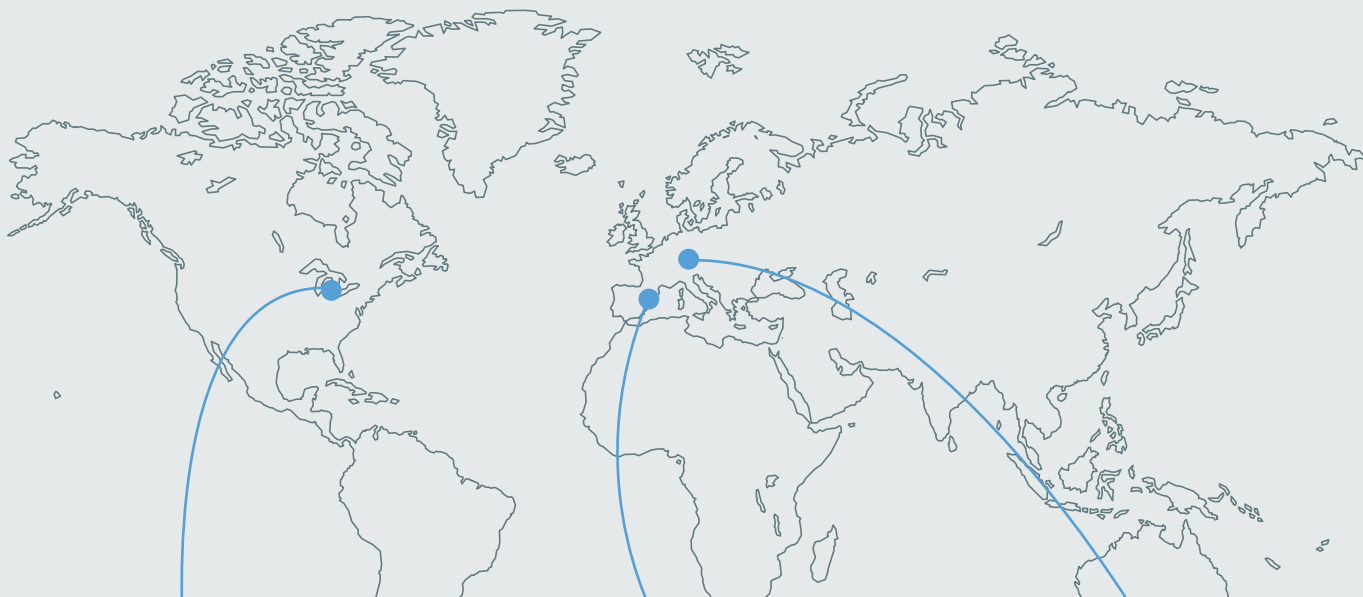


UR20

Payload	20 kg / 44.1lbs
Reach	1750 mm / 68.9 in
Weight	64 kg / 141.1 lbs
Footprint	Ø 245 mm

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