

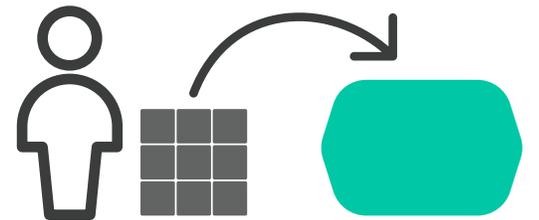
How can OTTO work for your material handling?

# Work in Progress Transport

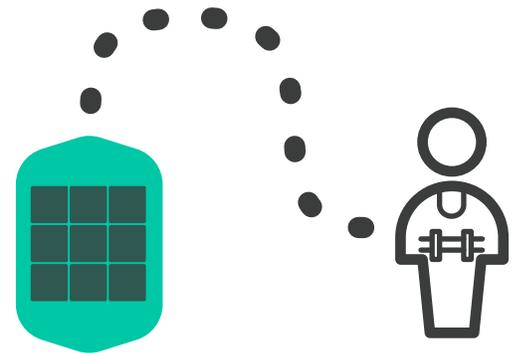
Transporting Work in Progress (WIP) materials throughout a manufacturing facility is critical in ensuring the smooth and efficient operation of production lines. Manually moving these materials over long distances within a facility removes workers from high value tasks and relegates them to low value, low skilled tasks, reducing the efficiency of a production line. OTTO Autonomous Mobile Robots (AMRs) are designed to perform the low value, repetitive task of moving materials, allowing workers to stay in one place performing high value tasks that require a human operator.

## Workflow

- 1 Operator at a prep workstation completes their task and requests an OTTO AMR to transport materials.
- 2 OTTO arrives and the operator manually loads materials into a bin or on a cart on the OTTO. The operator marks the task complete and sends OTTO to the designated location along the line.
- 3 Upon arriving at the designated location, OTTO will park and enable the receiving operator to unload the bin or cart.
- 4 Once unloaded the operator will complete the mission and OTTO either finds its charging station (if required) or becomes available for the next mission.



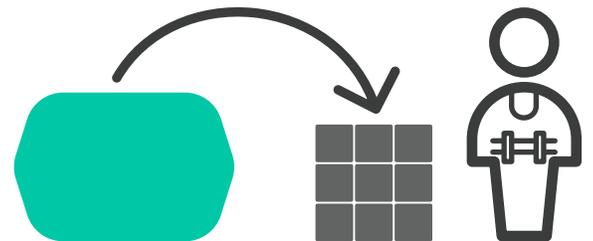
Operator calls OTTO and loads WIP materials into a bin or cart for transport.



OTTO moves materials to designated recipient along the line.

## What's Involved

- Operator (tending machines, working at a station)
- Robot operator/supervisor
- OTTO 100 with custom fixtures
- OTTO Fleet Manager
- Process Engineer



Operator receives and unloads WIP materials and releases OTTO for next mission.



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## Pitfalls to traditional process

- ✗ Requires excessive floor space and WIP inventory storage.
- ✗ Human material movement has limitations on speed and weight of materials they're able to move.
- ✗ Skilled humans have to stop their work to complete low skilled tasks.
- ✗ Stress injuries caused by repetitive long walks.

## Value gained with OTTO

- ✓ No additional physical infrastructure required, enabling more productive floorspace.
- ✓ Higher throughput and predictable delivery of materials due to speed, 24/7 operation, and intelligence.
- ✓ Automating low skilled tasks gives workers a higher purpose in their role.
- ✓ Reduce repeated stress injuries.

AMR implementation in manufacturing is generally driven by the need for cost savings, and the ROI is usually calculated through the reallocation of Full Time Equivalents (FTEs).

This chart highlights the other opportunities for costs savings and additional value that can be gained when AMRs are deployed.



## How do I know if this workflow is right for me?

- ✓ Stable, well balanced payloads under 150 (330lbs) on carts or in bins.
- ✓ Single floor operation with distinguishing features for localization.
- ✓ Designated pick-up/drop-off locations.
- ✓ Seeking flexibility or ability for reconfiguration of lines or routes.



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