

Selfie Aligner – Business Case

Improve automation with mobile robots

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New possibilities:

Autonomous Mobile Robots (AMR) combined with a collaborative robot are becoming popular for automation. But these Mobile Manipulators traditionally lack positional precision and can therefore only be used for transporting boxes. Similar to the "last mile problem" for the delivery industry, mobile robots have a "last centimeter problem".

Selfie Aligner is designed to solve this problem. This new calibration system enables mobile robots to align to a fixed workplace with extremely high accuracy. This makes it possible for the mobile robot to perform detailed tasks with a precision similar to what a stationary robot can do.

The position calibration is performed automatically with a camera on the robot arm and a special calibration mark at the workplace.

The adjustment system is based on simple principle where the camera see itself in a mirror on the calibration tag.



Mobile Robot with the new Selfie Aligner. Henning Forbech at Aalborg University.

Case: Lab

Mobile manipulators (AMR+Cobot) have already gain popularity in laboratories where they typically help with internal transportation of boxes with specimen.

With a small update to perform precision alignment these mobile robots could also place specimen under a microscope or put them in a centrifuge.

The same mobile robot could perform more valuable tasks and drastically reduce the ROI on the system.

It will be easier to find a good business case when the mobile robot can help with the lab work and not only be an expensive transport system.

Case: Production

Small manufacturing companies are typically running serial production in small batches and with a lot of variants. In the classic setup for this production the shopfloor consists of separated work cells designed for humans.

Some work processes could be automated with cobots. If these cobots where mobile they could be a shared tool that could help on the shopfloor where and when needed.

An AMR could navigate between work cells and among people without being a risk. With the new precision alignment these mobile robots could work with the same precision as stationary mount robot.

This could open for more automation in the typical high mix, low volume production in small production companies.

Automation without changing the factory layout in small companies could open a huge marked for mobile robots. The Selfie Aligner would be a key tool for opening this new marked.

Video: Proof of Concept

Selfie Aligner test and demonstration video: https://vimeo.com/853226419/76847cad35 More info: https://www.toolchanger.eu/selfie-info/