# Alignment Repeatability
## Selfie Aligner Test and Statistics
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The Selfie Aligner makes it possible for a robot arm on a mobile platform to work with same accuracy on a fixed workplace as it has on its own platform.

This is only possible because the aligner has an extremely high accuracy and an alignment can be repeated with a very high precision.

A test series show that the Selfie Aligner can align to the Mirror Tag with a repeatability of less than 0.1 mm and 0.3 mRad.

Traditional systems that align to a small chess board or QR code have an accuracy of ±1 mm and ±1º (1º is 17.45 mRad). The 1º error is a show stopper for these systems.

The Selfie Aligner is 10-time better on the position precision and 50-time(!) better on the orientation precision than the traditional chess board systems!
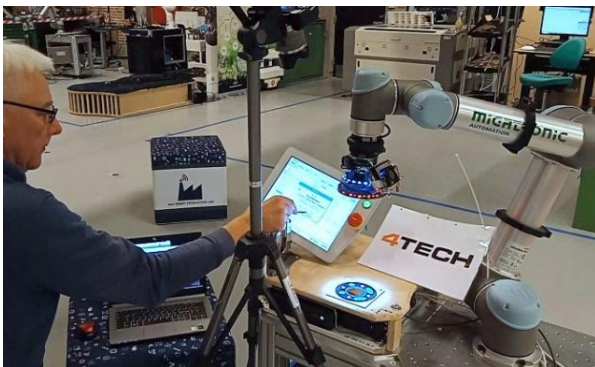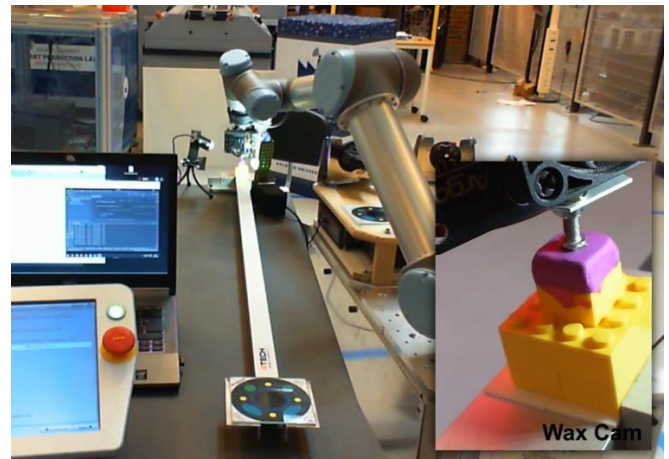

Repeatability test

In the test series with 20 alignments the mean deviation was 0.072 mm and 0.214 mRad.

Full document on repeatability and accuracy of the Selfie Aligner:
www.toolchanger.eu/selfie-info/

A mobile robot can autonomously navigate around a workshop and visit different fixed workplaces. To perform precision tasks (and earn money) at these positions it must be aligned with an accuracy that let the robot work with almost same precision as it has on its own platform. That require a 1 mRad angular alignment accuracy.

A demonstration of how precise the Selfie Aligner actually is can be seen with the "One Meter Wax Test". Here a robot aligns to a tag at the end of a one meter long bar and use this information to stamp a mark on a wax block at the other end of the bar.


"One Meter Wax Test"

Video:  Repeatability test:
https://vimeo.com/886262666/e36fd86f21
Video:  One Meter Wax Test:
https://vimeo.com/853226419/76847cad35


Repeatability Test                One Meter Wax Test