

How to get a robot position from video image

Christoph Kendel

28. April 2026

1 Intro

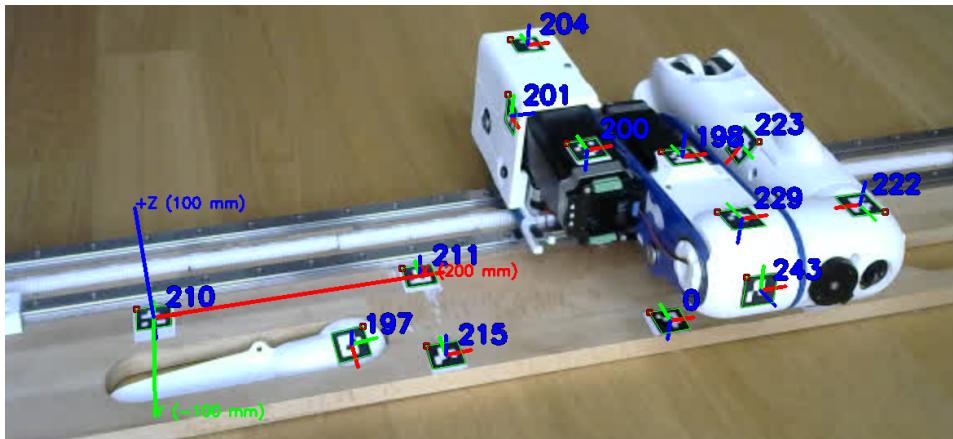
My Robot-Arm does not have homing switches. I want to use WebCams and Aruco-Markers to get the position of each joint. This way I can get the position as well as double-check the position while working under load.

I work with Arucos. With my low resolution WebCam I can get reliable positions (when using two cams). But the angle resolution is not usable. So I have to calculate the angle of each element from the relative positions of the markers.

2 Angles

2.1 Biceps y

To find the angle of the biceps (upper arm) there are different options, depending on the angle-of-view and which ArUcos are visible.



The calculation is based on two approaches: Position of the Markers 243 etc on the one hand, and relative position 198 ↔ 229 on the other hand.

- Thus we get y

-