

Master Thesis/Bachelor Thesis Trajectory Tracking using Camera system

THESIS AT THE AUTOMATION TECHNOLOGY LAB

Prof. Dr.-Ing.
Andreas Schwung

Department of Electrical
Energy Technology

Fachhochschule
Südwestfalen

University of Applied Sciences

Contact

Fabian Westbrink, M.Sc.
Lübecker Ring 2
59494 Soest

Tel.: 02921 378 3414
E-Mail:
Westbrink.fabian@fh-swf.de

or

Prof. Dr.-Ing.
Andreas Schwung
Lübecker Ring 2
59494 Soest

Tel.: 02921 378 3419
E-Mail:
schwung.andreas@fh-swf.de

Motivation

With increasing computation performance, miniaturised integrated circuits and improved camera technologies have made the use of camera systems quite prevalent in industrial applications. The detection of bodies, especially in motion, requires an appropriate camera system, parameterisation and image recognition algorithms.

The objective of this thesis is the development and selection of a camera system which is able to detect bodies distinctly and track their trajectories in an appropriate way.

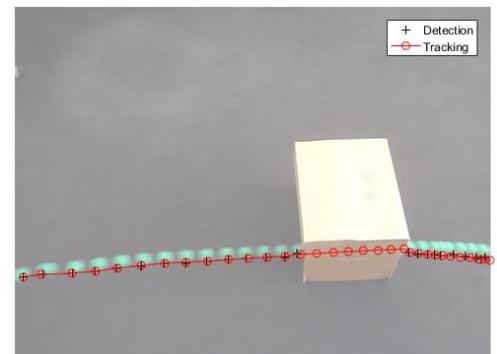


<http://www.cognex.com/products/machine-vision/in-sight-7000-series-integrated-vision-systems>

Task

During the offered thesis different camera systems are to be compared with respect to their individual characteristics and applicability. Cameras with external analysis unit or smart cameras as embedded systems are possible technologies which are to be evaluate. The desired system will be chosen considering the performance, ability and price. A test plant is to be assembled with the camera system installed. With respect to defining prior conditions like background colour, detection of bodies or tracking speed and resolution, the chosen system is to be adjusted and configured

Test scenarios have to ensure the correctness of the measured data. The trajectory of each body is to be saved in an appropriate format afterwards.



<https://de.mathworks.com/help/vision/examples/using-kalman-filter-for-object-tracking.html>

Requirements

Strong Affinity towards innovative and modern technologies. Profound knowledge in manipulating measured data and basic skills with camera systems are desirable.

We are looking for master or bachelor students of the South Westphalia University of applied sciences who want to complete their thesis.