

Accepted Manuscript

Size measurement based on a two-camera machine vision system for the bayonets of automobile brake pads

Rong Xiang, Wenhui He, Xinna Zhang, Dong Wang, Yuekang Shan

PII: S0263-2241(18)30193-3

DOI: <https://doi.org/10.1016/j.measurement.2018.03.017>

Reference: MEASUR 5336

To appear in: *Measurement*

Received Date: 7 August 2016

Revised Date: 6 February 2018

Accepted Date: 5 March 2018

Please cite this article as: R. Xiang, W. He, X. Zhang, D. Wang, Y. Shan, Size measurement based on a two-camera machine vision system for the bayonets of automobile brake pads, *Measurement* (2018), doi: <https://doi.org/10.1016/j.measurement.2018.03.017>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Size Measurement based on a Two-Camera Machine Vision System for the Bayonets of Automobile Brake Pads

Rong Xiang^{a*}, Wenhui He^b, Xinna Zhang^b, Dong Wang^c, Yuekang Shan^d

(a. *College of Quality and Safety Engineering, China Jiliang University, Hangzhou, 310018,*

China b. College of Modern Science and Technology, China Jiliang University, Hangzhou, 310018,

China c. Engineering Training Centre, China Jiliang University, Hangzhou, 310018, China d.

Institute of Xiaoshan Industry Research, Hangzhou, 311215, China)

*Corresponding Author: Xiang Rong, 258 Xueyuan Street, Xiasha Higher Education District,

College of Quality and Safety Engineering, China Jiliang University, Hangzhou, China, 310018;

Phone: +86-13175106842;

Email : xr_rongge@cjlu.edu.cn

Abstract: This paper presents a measurement method based on a two-camera machine vision system and a relative measurement principle to realize the high-accuracy measurement of bayonet sizes of large automobile brake pads. This method used two cameras to capture the local images around the left and right standard edges of a specially designed standard and around the left- and right-detected edges of the measured bayonet. Then, the rectangle regions of the detected edges were set automatically. The measurement equation corresponding to the detected edges was derived after edge detection and linear fitting on the basis of the relative measurement principle.

Finally, the bayonet sizes were determined using the measurement equation. Test results showed that repeatability was ± 0.019 mm, the average of biases was 0.003 mm and average measurement time was 0.396 s per brake pad, all of which satisfied the requirements of online measurement.

Keywords: brake pad; size; machine vision; measurement; calibration

Download English Version:

<https://daneshyari.com/en/article/7121206>

Download Persian Version:

<https://daneshyari.com/article/7121206>

[Daneshyari.com](https://daneshyari.com)