


Applying Real Time Calibration of Baseline Length in Single Camera Stereo Systems		
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Research Topics
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Research Seeds
<p>3D image processing algorithms for real time calibration of the base line length in a single camera stereo system are presented in this paper. Performances of less than 0.03 mm depth measurement in precision and about 0.45 s processing time in inspection are also presented based on applications to the experimental equipment. It is technically noted that the baseline of this single camera stereo was calibrated precisely using the image processing procedure. This system of simple composition can expand the application range as a method of 3D measurement in an industrial field. To do this in our research, we propose an inspection environment for realizing an inexpensive and highly precise 3D measurement scheme and its algorithm.</p>

Because stereo measurement has a simple system configuration, and because highly precise measurements are possible when the corresponding point information of the image is clear, wide utilization is advanced on various scenes such as use in an industry and security field. To realize the function of stereo views with one camera, a mechanism shown in Figure 1 was fabricated, where a camera is fixed and the work is set as movable along with the feeder. The left and right stereo images were captured at the respective moments before and after the mechanical feeder motion. The baseline was calculated precisely using corresponding feature points extracted from these two images. Some feature points are extracted precisely by the original algorithm for image processing.

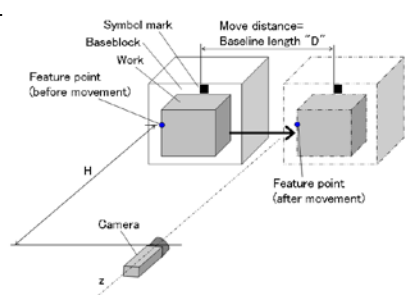


Figure 1. Single camera stereo model.

Related Technology
<ul style="list-style-type: none"> • Image processing • Single camera stereo vision