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计量测试

基于线阵CCD的运动板材边缘检测方法

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摘要

研究了一种利用线阵CCD的图像快速采集功能对运动板材边缘进行检测的方法。该方案用平行光投射系统来照明,采用一片AVR单片机驱动CCD工作并对测量结果进行处理,
有效地简化了硬件结构。介绍了一种CCD输出信号的处理电路及其二值化原理,并给出了系统硬件、
软件设计方案。实验证明:该方案的测量精度可达到0.03mm,响应时间少于2ms。

关键词 平行光投射系统 线阵CCD 边缘检测 二值化

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Edge detection method of moving plate objects based on linear array CCD

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Abstract An edge detection method of moving plate objects was designed by means of the image gathering function of a linear array CCD. The hardware structure was effectively simplified with a parallel beam projector as an illuminating source, an AVR single-chip computer to drive the CCD and to dispose the detected results. The measurement circuit and the binarization principle of CCD output signals are introduced. The design plan of the hardware and software are also provided. The experiment shows that the measuring accuracy of this instrument is better than 0.03mm, and the response time is fewer than 0.2ms.

Key words parallel beam projector linear array CCD edge position detection binary

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