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VFD显示图像缺陷检测技术研究

李定珍, 王萍

南阳理工学院 电子与电气工程学院, 河南 南阳 473004

**摘要：**系统采用PCI-1428图像采集卡、CCD图像传感器及摄像机、PC机搭建VFD显示图像缺陷检测硬件平台,采集VFD图像;并用LabVIEW与IMAQ-VISION软件进行图像自动拼接、图像缺陷检测、工作台控制以及数据库等系统软件设计。为了获得较好的图像效果,针对采集的VFD图像特点,先用灰度变换、平滑滤波、灰度阈值分割、图像二值化等方法对其进行预处理,接着完成VFD显示图像的图案连码、断码、缺损和疵点等多种缺陷检测。经测试和实际运行,结果表明该检测系统具有速度快、范围宽、精度高、漏检误检率低等一系列优点,检测结果理想,实现了预期的检测功能和检测效果。

**关键词：**真空荧光显示屏 缺陷检测 图像拼接 模版匹配 疵点检测

Defects Detection Technology of VFD Display Image

LI Ding-zhen, WANG Ping

Institute of Electronics and Electrical Engineering, Nanyang Institute of Technology, Nanyang 473004, China

**Abstract:** The hardware platform of defects detection was composed for VFD display image by using PCI-1428 image acquisition card, CCD image sensor, camera and PC. VFD display image was acquired. Using software combination of LabVIEW and IMAQ-VISION, the system software were designed for image automatically montage, image defects detection, workstations control and database. Aiming at the characteristics of sampled VFD image, it was preprocessed by using gray-scale transformation, filtering, thresholding segmentation gray and image binarization methods to get good VFD image. Then the defects detection of VFD display image were completed, such as pictorial code, breaking codes, defects, flaws in letters' strokes. By test and actual operation, the experimental results showed that the system had a series of advantages. Detection speed and accuracy were high. Detection range was wide. Leaking inspection rate and false drop rate were lower. Detection results was ideal. It was achieved for the expected initial detection function and effect.

**Keywords:** vacuum fluorescent display defects detection image mosaic module matching flaws detect

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通讯作者:

作者简介:

作者Email:

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