

AUTOMATED CERAMIC TILE DEFECT RECOGNITION SYSTEM

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by

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Abstract

In recent years, the real estate industry gets rapid development, and at the same time, the world ceramic tile production and consumption also get rapid development. Compared with the natural stone, polished porcelain floor tiles have many advantages of high strength, light weight, aging-resistance, corrosion resistance, and color consistency. As well as other industries quality assurance is one of the major tasks in ceramic tile industry.

All ceramic tile Industries try to give competitive tiles without defects. In ceramic tiles there are different types of faults such as holes, dirty spots, color bleeding, pattern mismatch etc. Identification of these faults is very important for the ceramic tile industries. Automated Visual Inspection Systems are becoming increasingly popular due to low cost maintenance and high accuracy. Ceramic tile factories, for example, are very much interested in these sorts of systems.

This system is used to surface defect recognition in automated way. Product line is used to carrying tiles to destination. Image is captured of each tile while tiles are flowing on the product line. After, captured image is supplied to the C# program. C# program analysis the image and compare with the original tile image. After, output signal is sent to circuit to stop process for defect tiles. Microcontroller is responsible for stop the motor of product line for defect tiles. Also system consists of data handling part for keep records of tiles. This proposed model will allow ceramic tile companies to perform quality control inspection without costly measuring tools or error-prone inspection by humans. Moreover, factories have to install and apply Flatness Control Machine to measure the flatness curvature of ceramic tiles. This machine keeps the ceramic tiles in fixed position to investigate the upper surface only.