

A Molding Surface Auto-inspection System

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Abstract : Molding process in IC manufacturing secures chips against the harms done by hot, moisture or other external forces. While a chip was being molded, defects like cracks, dilapidation, or voids may be embedding on the molding surface. The molding surfaces the study poises to treat and the ones on the market, though, differ in the surface where texture similar to defects is everywhere. Manual inspection usually passes over low-contrast cracks or voids; hence an automatic optical inspection system for molding surface is necessary. The proposed system is consisted of a CCD, a coaxial light, a back light as well as a motion control unit. Based on the property of statistical textures of the molding surface, a series of digital image processing and classification procedure is carried out. After training of the parameter associated with above algorithm, result of the experiment suggests that the accuracy rate is up to 93.75%, contributing to the inspection quality of IC molding surface.

Keywords : molding surface, machine vision, statistical texture, discrete Fourier transformation

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