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Abstract
This paper designs two automatic scratch inspection systems; one is for unprinted credit cards and the other one is for glass substrates of TFT-LCD. Both inspections are mainly dependent on large manpower in manufacturing industries of Taiwan now. Thus, automatic inspection systems can help companies to cut expenses of time and manpower. The unprinted credit card inspection system takes the advantage of the collimation characteristic of laser. We use a beam expander to expand a laser beam broad enough to cover the whole credit card without losing its collimation characteristic. In the glass substrate of TFT-LCD inspection system, we use a high dynamic range camera to catch small changes of pixel values coming from scratches. We transfer the taken picture into binary form and separate scratches and dusts by calculating their areas. The experiment results show the automatic scratch inspection systems can successfully take clear scratch pictures and locate the scratches.
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