

Machine vision system in the cold process of TFT-LCD glass substrates manufacturing

유준*, Ali Yousefian
부경대학교
(jayliu@pknu.ac.kr*)

Because of stochastic nature of the visual appearance of the products, inspection of surface waviness by human eyes is difficult and wrong judgments are easily made due to human subjectivity and eye fatigues. Recently, machine vision is being used to automate and improve this process. This study develops an image processing methodology, wavelet co-occurrence signature, and employs optical system design to make an in-line surface defect inspection system for cold process part. Because of big size of mother-glasses (glass substrates), the pixel intensity uniformity of sub-glass images can be affected by lighting conditions, environmental factors and the position of sub-glasses. Therefore, there are inter & intra lighting non-uniformity between sub-glasses and mother-glasses. For decreasing the effect of that on classification system, two different models were trained to detect the defects on the surface of TFT-LCD glass substrates. Finally, using this method could improve the classification accuracy.