Texture Identification Using Vision System: A Method to Predict Functionality of a Component

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Abstract : Texture identification is useful in predicting the functionality of a component. Many of the existing texture identification methods are of contact in nature, which limits its measuring speed. These contact measurement techniques use a diamond stylus and the diamond stylus being sharp going to damage the surface under inspection and hence these techniques can be used in statistical sampling. Though these contact methods are very accurate, they do not give complete information for full characterization of surface. In this context, the presented method assumes special significance. The method uses a relatively low cost vision system for image acquisition. Software is developed based on wavelet transform, for analyzing texture images. Specimens are made using different manufacturing process (shaping, grinding, milling etc.) During experimentation, the specimens are illuminated using proper lighting and texture images a capture using CCD camera connected to the vision system. The software installed in the vision system processes these images and subsequently identify the texture of manufacturing processes.

Keywords : diamond stylus, manufacturing process, texture identification, vision system
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