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COMPUTER VISION ALGORITHMS FOR MEASUREMENT AND INSPECTION OF EXTERNAL SCREW THREADS

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ABSTRACT

The current methods of measuring screw threads are either time consuming or expensive. In addition, no single measurement method is available and capable of accurately measuring all screw thread features while significantly reducing the measurement time. This paper introduces a vision system for automatic measurement and inspection of most types of screw threads. Many image processing and computer vision algorithms have been developed to analyze the captured images of screw threads and perform the measurement and inspection processes. Most of the common screw thread features (18 features) could be measured by the introduced vision system. The system has been calibrated for both imperial and metric units and was verified by measuring a standard ISO metric thread plug gage and comparing the results of the measurements with the standard values. The results showed that the maximum

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