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Statistical Monitoring of Gauge R&R in Real Time

In manufacturing, output of a measurement system is often used to classify products as conforming or nonconforming. Therefore, to ensure product quality, it is essential to utilize a suitable measurement system. In this regard, practitioners frequently employ various performance metrics to assess measurement systems, which are typically obtained through off-line studies involving experimental setups. However, a measurement system may fail online, during use in manufacturing, and the analyst might unknowingly continue to rely on the measurement system. As a result, online monitoring of the measurement system becomes crucial, particularly in manufacturing environments that require high-precision measurements.
In this study, we propose a real-time measurement system monitoring method. Unlike the traditional approaches for Gauge R&R studies, performance metrics are monitored in real time using statistical transformations and control charts. The real-time Gauge R&R application provides immediate feedback on measurement system, thereby enabling the early detection of potential problems. The proposed model is tested by computer simulations and it offers statistical insights for practitioners seeking to maintain high measurement reliability during ongoing production.

Special/ Invited session

Classification

Mainly methodology

Keywords

Real Time Gauge R&R, Measurement System Analysis

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