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ERROR REDUCTION IN CONTOUR SCANNING

WITH THREE COORDINATE MEASURING MACHINE

000230

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ABSTRACT

The study aims to minimize if not reduce the erroneous data produced by contour scanning using CMM.

This also provides additional knowledge in the field of "Reverse Engineering Technique" to produce accurately the curved profiles of cams and involutes of gears without prior knowledge of its design and dimensional requirements.

Modern contour scanning machines scan profiles by taking its x and y coordinates. The errors that occur by this method is due to the movement of the two axes of the machine. Hence, the concept of combining the principle of Laser measurement system and the function of rotary table to scan contours (curved profiles) will eliminate the errors that will come from one of its axes. The Laser system, on the other hand, will reduce the error of the other axis since it has a higher degree of accuracy compared to the measuring system of any measuring machine. This concept will be realized by the fabrication of Contour Scanning Unit (CSU) and a Hard Probe.

Proper alignment/installation and fabrication must be observed in this study in order to attain precision and accurate results in measurement.

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