

**A DESIGN OF MACHINE VISION SYSTEM FOR THE
AUTOMATIC SURFACE PROFILING MEASUREMENT USING
SHADOW MOIRE TECHNIQUE**



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ABSTRACT

Moiré techniques are straightforward methods used for contactless non-destructive metrological measurement. As compared to the traditional Coordinate Measurement Machine (CMM), moiré techniques have been widely used for surface measurement for the testing and inspection processes in manufacturing because the conventional CMM has the disadvantage of surface measurement using simple point-to-point operation. In this research the surface profiling measurement using the shadow moiré technique with phase-shifting algorithms has been implemented. A simple surface profiling machine setup has been introduced and fabricated by using the machine vision principle and the moiré experimentation. A full integrated system was demonstrated in this research with an integrated Graphic User Interface to perform various image processing analysis, fringe pattern analysis as well as the automatic reconstruction of the 3-D object surface.