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AUTOMATED LOW-COST PHOTOGRAMMETRY FOR FLEET MONITORING

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Abstract. Structural monitoring requires instruments which can provide high precision measurements at good temporal resolution and rapid processing speeds. Long-term monitoring are regarded as two of the most challenging subjects in monitoring engineering structures. Engineering is generally considered to be labourintensive and financially expensive. To arrange the necessary human resources, transportation and equipment maintenance for structure monitoring, it is of paramount importance that any monitoring equipment be cost-effective. Low cost, automated, photogrammetric techniques therefore have the potential for monitoring non-rigid structures.

This research aims to provide a photogrammetric solution for long-term flexible structures. An automated approach was achieved using low-cost imaging devices (mobile phone cameras) and substantially reduce the equipment costs. A self-programmed software to deal with the hardware-software integration and system operation. In order to evaluate the cost monitoring system, a shaking table experiment was undertaken. Different network topologies were used to determine the best configuration. A large quantity of image data was captured by four mobile phone cameras respectively. These image data were processed using a self-programmed software to calculate the final results for the system evaluation.

[Conference Paper](#) (PDF, 4644 KB)

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