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Gear Error Detection by Photo Image Processing

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Abstract: *A sampling method of gathering representative data from a group. For example, a manufacturer might check only 2 or 3 gears from a batch of 100 gears. Due to which the whole lot gets rejected if any gear in between has error in it. Thus, we need to check each and every gear in the batch but manually this process is time consuming. In our project we are designing and manufacturing a system which will be checking each and every gear. We use a conveyor belt for movement of gear, a camera for capturing and checking the gear parameters for its error by comparing the parameters stored at the back end. If the parameters are matched with the stored parameters, then it goes to the accepted lot otherwise with the help of shooting gun it goes toc the rejected lot.*

Precision measurement of gears plays a vital role in gear measurement and inspection. The current methods of gear measurement are either time consuming or expensive. In addition, no single measurement method is available and capable of accurately measuring all gear parameters while significantly reducing the measurement time. The aim of this paper is to utilize the computer vision technology to develop a non-contact and rapid measurement system capable of measuring and inspecting most of spur gear parameters with an appropriate accuracy. A vision system has been established and used to capture images for gears tobe measured or inspected.

The introduced vision system has been calibrated for metric units then it was verified by measuring two sample gears and comparing the calculated parameters with the actual values of gear parameters. For small gears, higher accuracy could be obtained and as well as small difference.

Keywords: *gear parameters*

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