

Automatic data collection, visualization and predictive maintenance during probe calibration in CNC machines

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Introduction and background:

GKN Aerospace Norway is a global supplier of parts for airplanes in both military and commercial engine programs. To manufacture these parts with strict tolerances they use precise CNC machines. The CNC machines contains several different probes that need frequent calibration. The data gathered from these calibrations are stored in a log file in the machine that are manually gathered and analyzed. GKN needs to define a system for automatically collecting and visualizing these calibration logs. In addition, GKN Aerospace Norway AS would like to know if the calibration data and other variables in the machine can be used for predictive maintenance purposes.

Problem description and objective:

The objectives are to give an introduction to machine theory and the measuring principles used in CNC machines. Define a system for automatically collecting and visualizing the calibration logs and test it locally. The system is intended implemented in CoPilot which is a software developed by GKN Aerospace Sweden AB for monitoring and analytics. Further a literature study on predictive maintenance and machine learning in CNC machining should be performed. And if time is at hand a related machine learning model should be trained and tested on calibration data from a chosen machine at GKN Aerospace Norway AS.



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