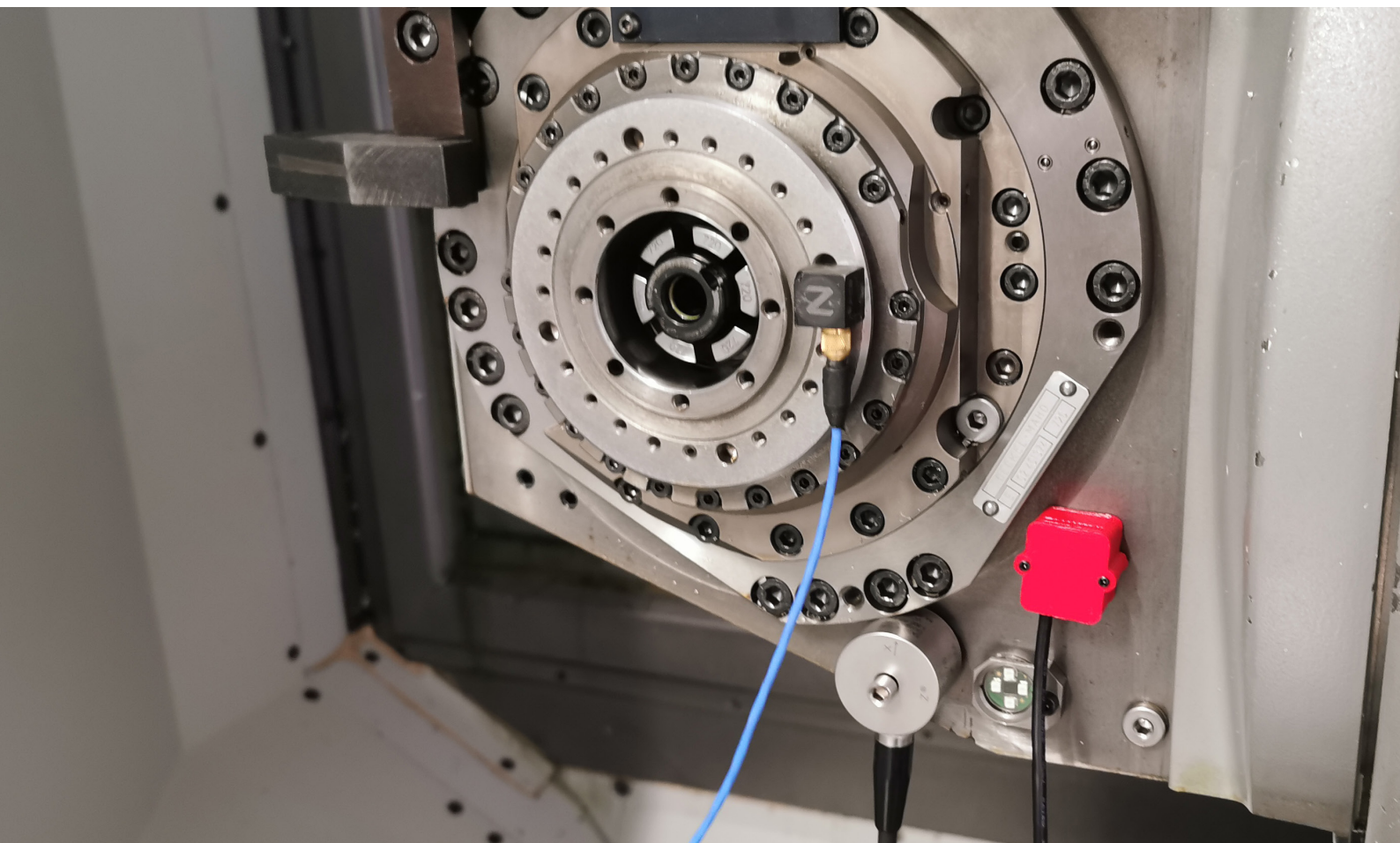




AMRC opens door to increased machine productivity for SME

Challenge

To analyse acceleration sensorial data from machining operations to explore techniques for outlier detection to provide information on machine collisions, as well as looking at the statistical examination of once-per-revolution samples in milling and turning machines to help reveal the stability state of the cutting process.





Background

Machine Tool Technologies Ltd (MTT) based in Chorley was formed in 2001 and provides machine tool services including maintenance, repair and retrofitting legacy machines. MTT is committed to research especially in sensors, signal processing and analysing machine sensorial data. Engineers from the University of Sheffield Advanced Manufacturing Research Centre (AMRC) North West supported MTT's research through its RADAR programme, designed specifically to help small-to-medium sized enterprises (SME) and part-funded by the European Regional Development Fund (ERDF).

Innovation

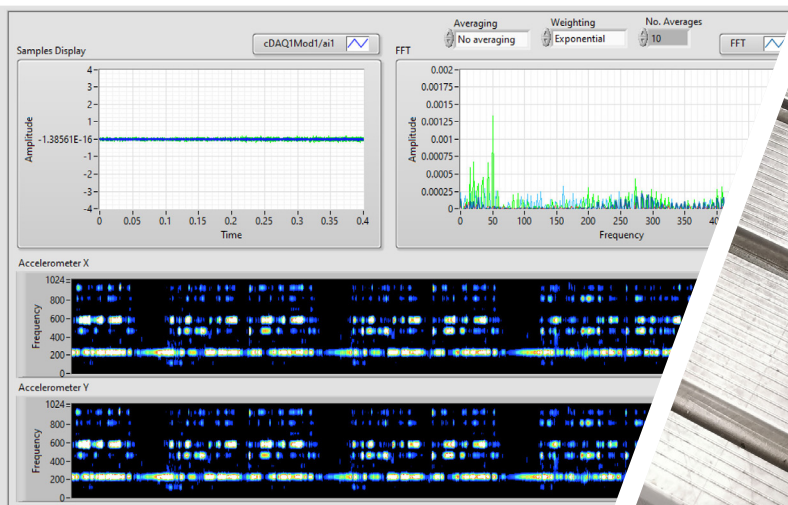
Engineers were able to highlight how accelerometers can be used to monitor machining processes. The report also provided comprehensive information on using acceleration to data to monitor chatter stability, including how once-per-revolution samples of acceleration can be implemented to detect chatter in the milling process.

Result

The assistance provided by AMRC North West has equipped MTT with a better perspective of the techniques that can be implemented to analyse machining data obtained from acceleration sensors, in order to monitor the cutting process and improve productivity.

Impact

Leveraging the information from accelerators can be used to increase machine productivity. The information provided as part of the project will act as a reference point for MTT to develop advanced machine monitoring strategies for both research projects and current commercial activities.



Acceleration data being used to detect unwanted events.

Acknowledgements

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