TU Clausthal

Abschlussvortrag Masterarbeit Muhammad Murad Huzaifa Siddiqui

„Drum Vibration Monitoring with Vibration Sensor"

This thesis provides an in-depth exploration of drum vibration analysis using various types of sensors, with a specific emphasis on accelerometers. Monitoring drum vibrations is crucial in industrial and engineering contexts to ensure operational integrity and safety. The study begins with an introduction to vibration sensor technology, followed by a detailed examination of accelerometers. A quantitative comparison is made between the effectiveness of accelerometers in detecting drum vibrations and the accuracy of infrared (IR) sensors for measuring rotational speed (RPM). The study also investigates the impact of altitude on sensor accuracy and reliability in vibration analysis.

The experimental setup includes data collection from an ESP32 Dev Kit, and Raspberry Pi 4 Model B. Findings show consistent activity with minimal vibrations on the X, Y, and Z-axis. RPM measurements were stable within a defined range, with corresponding pulse and magnitude values. Vibrations are categorized into "Good Vibration" and "Normal Vibration" to provide insights into sensor performance, data accuracy, and predictive maintenance. These insights lay the groundwork for more reliable monitoring systems that enhance operational efficiency and safety in industrial applications.

Betreuer der Arbeit:	Prof. Dr. Benjamin Leiding, PD Dr. Christoph Knieke
Datum:	Donnerstag, 26. September 2024, 13:00 Uhr
Ort:	Online-Meeting über BBB
	Link: https://webconf.tu-clausthal.de/rooms/ben-lpl-wxw-mgz/join