

AUFGABE DER BACHELORARBEIT

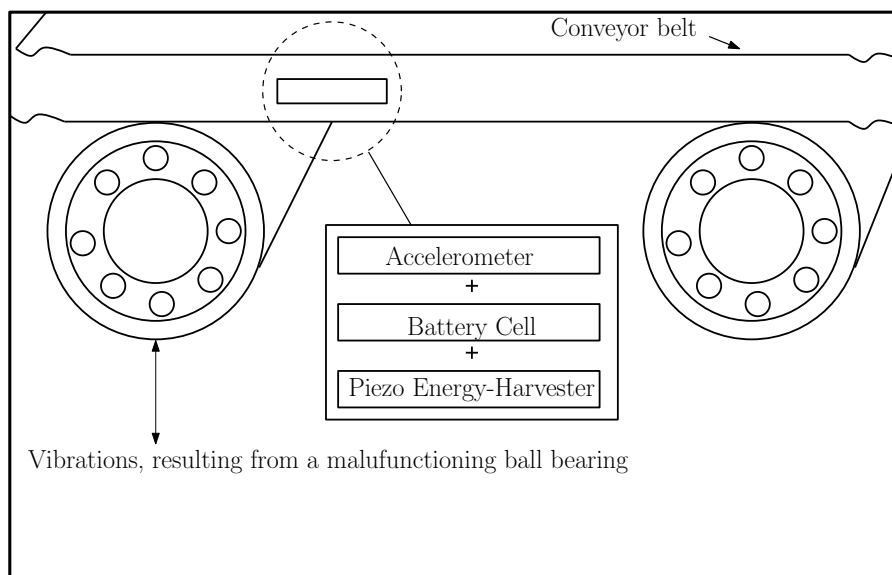
im Studiengang "Electrical and Electronic Engineering"

für: **Peng Han**

gestellt von: **Prof. Dr.-Ing. Andreas Czulwik**

Thema: Investigation of energy harvesting solutions for an accelerometer implemented in an industrial conveyer belt

The source of energy supplying the electric components for detecting vibrations generated by malfunctioning ball bearings used carrying rollers of a conveyor belt plays a key role in designing and implementing an industrial system to intelligently monitor and wirelessly acquire the detected data.(see the Fig.)



In this thesis the energy required for operating an ADXL335 accelerometer evaluation chip shall be investigated. An energy source supplying the accelerometer shall be designed based on (piezo) transducers charging a battery with energy generated from vibrations of the conveyor belt.

The assignment includes the following steps:

- preparing a time and work plan,
- measuring vibrations created from a conveyor belt with the help of an accelerometer,
- analysing the energy consumed by the accelerometer in different operating conditions,
- developing a circuit for charging a battery with piezo elements,
- evaluating and comparing the resulting solutions,
- documentation of the work,
- presentation of the work and
- handing over a digital copy in PDF format of the thesis.

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