



## **Abschlussvortrag Masterarbeit Vinendhar Reddy Bollu**

„Digitizing and Enhancing Conveyor Belt Performance in Eddy Current Separator Using IoT and Raspberry Pi“

An eddy current separator (ECS) is a machine that separates non-ferrous metals from an input waste or ore stream. The separator's conveyor belt transfers the material across the magnetic rotor, where separation occurs. Here, the conveyor belt plays a vital role as the optimal functioning of the belt is indispensable for the effective sorting and separation processes. One of the most frequent issues with belt conveyors is the deviation of the belt, which leads to abnormal wear of equipment and increased energy consumption, in addition to scattering materials and affecting the environment. This project aims to proactively anticipate and quickly correct any deviations in the ECS conveyor belt alignment by using an IoT-driven solution powered by Raspberry Pi technology. Deviation of the belt is detected using the OpenCV library by extracting the straight-line features of the conveyor belt edges using the Canny edge operator and the probabilistic Hough transform algorithm, and realignment of the belt is done using stepper motors.

Betreuer der Arbeit: Prof. Dr. Benjamin Leiding, PD Dr. Christoph Knieke

Datum: Freitag, 13. Dezember 2024, 10:00 Uhr

Ort: Online-Meeting über BBB

Link: <https://webconf.tu-clausthal.de/rooms/ben-lpl-wxw-mgz/join>