TU Clausthal

Abschlussvortrag Masterarbeit Ravinder Reddy Bukka

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

An Eddy Current Separator (ECS) is a machine used to separate non-ferrous metals from non-metals in the recovery and waste management industry. The conveyor belt plays a crucial role in ECS in separating materials. Despite its utility, conveyor belts face significant issues related to deviation and alignment. The problem of conveyor belt deviation significantly impacts the belt, rotor drum, machine, and the environment. To tackle this issue, the research focuses on detecting conveyor belt deviation and alignment in ECS using OpenCV. OpenCV is a popular library known for utilising global adaptive high dynamic range image processing and video analysis within the computer vision industry. Using this library, the deviation is detected by extracting the features of edges by the Canny edge operator and straight lines by probabilistic Hough line transformation of the conveyor belt. At the same time, alignment is calculated using a stepper motor to realign the conveyor belt back to its original position. This research was conducted on real-time ECS in the laboratory using Raspberry Pi with IoT integration, yielding efficient results at 18 frames per second.

Betreuer der Arbeit:	Prof. Dr. Benjamin Leiding, Prof. Dr. Jörg P. Müller (Institut für Informatik)
Datum:	Donnerstag, 14. März 2024, 09:00 Uhr
Ort:	Online-Meeting über BBB
	Link: https://webconf.tu-clausthal.de/rooms/ben-yjv-0uq-l3z/join