



POLYGAP

ROBOTIC SYSTEM FOR GAP AND PROFILES MEASUREMENT BETWEEN STANDS IN A ROLLING MILL PROCESS



MANUAL OPERATION

The main goal is to identify deformations of the rolling product due to the roll misalignment, a wrong gap setup, and/or various mechanical/chemical causes.

To carry out the measurement, the operator enters the rolling mill area, approaches the incandescent material, and places a more malleable material (wooden plank traditionally) on the product section. After that, he checks the negative profile resulting to identify defects such as overfilling, underfilling, top-bottom roll misalignment, and others.

ROBOTIC SOLUTION

The solution includes the use of an autonomous guided vehicle, on which is installed a robotic arm integrated with the product measurement and / or analysis device. The 2D / 3D vision scanner identifies the correct measurement point. **The system moves autonomously along the rolling mill's stands, approaching the best measuring point.**

The robotic arm chooses the point to start the scanning, moving the measuring vision system to the best position in order to identify the plastic deformation of the product exiting the rolls and / or carrying out a surface defect analysis.

The scanning system has a series of sensors or profilometers positioned in such a way as to detect different faces of the rolled material, in order to recreate the shape of the surface. Reference values can be set, so that the machine can autonomously produce a warning when the shape or profile is out of tolerance.



NEW SOLUTION!



CRITICAL ISSUES

- OPERATOR ACCESS TO A HIGH-RISK AREA
- POOR ACCURACY

A communication with level 1 allows you to monitor in real time the position of the head or tail of the laminated material. The measure interruption function can be implemented to promptly respond in cases of cobbles or other major production issues.

There is the option of building a rail system to guide the robot to fixed positions between the different stands along the rolling mill.

The system provides a communication node with level 1 to synchronize and time the measurement operations with the devices operating in the field.

A control interface can be integrated as an auxiliary page dedicated to the measuring system, within the supervision already in use in the plant and possible connection with IoT services, to monitor in real time the performance of the machine as well as the impact on the cycle of production.



ADVANTAGES

- OPERATOR SAFETY
- ADAPTABLE TO DIFFERENT PLANT LAYOUT
- RELIABILITY
- MORE ACCURACY
- QUALITY OF COLLECTED DATA