Metals

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Background

The production of steel, copper, nickel or their intermediates from ores is a highly complex process. Raw materials of the highest quality are produced, which later find their way into batteries, cars or razor blades. The processing steps are as diverse as the end products. Some of the steps take place independently of each other, but previous process stages still influence subsequent processing steps. In order for the processing plants to achieve its maximum availability, thousands of process parameters must be combined and monitored in near real-time.

The Case

- In the production of pure metals from raw products, thermal, chemical and mechanical processes must be combined
- In the case of pneumatic transport of raw materials, pipes must be pressurized at a certain rhythm to ensure a continuous flow of material
- Due to a defective valve, this case, the pressure surges were no longer synchronized and offset. This resulted in a material jam until the plant would have eventually come to a standstill

Highlights

- Depending on the operating parameters, there are different patterns in which valves and other components must interact
- The AI is able to isolate the incorrect pressure profile and isolate the source of the damage to three different valves
- The problems were thus detected in time, before a total breakdown
- In addition to failures that lead to unplanned downtimes, deviations from production steps leading to fluctuations in quality can also be detected

There are many reasons for unscheduled downtimes in metal production. Especially mechanical problems and fluctuations in chemical treatment can be predicted reliably thanks to the use of sensor technology. Some shutdowns occur spontaneously. Nevertheless, with the Predictive Maintenance solution from **mi Solutions** more than 30% of potential problems can be detected in time. A lost production hour causes costs of up to 50,000 Euros, with one to two weeks of unplanned downtime occurring every year.

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About Us

Often, a lot of unused potential is hidden in data from industrial plants. Only with experience and mathematical knowledge is it possible to uncover this value for companies. We offer these competences.