

First phase of automation system upgrade at SMW ISPAT in India

AIC India was contracted to upgrade the steel manufacturer's existing automation systems based on S7-400 using the most recent software in order to increase availability and yield.

The upgrade will be carried out in **two phases**: 1st phase involved the control systems replacement for the crop shears and divide shear including aprons and rake; the 2nd phase will upgrade the speed control system of the continuous mill comprising 18 continuous stands by implementing AIC's algorithms for cascade control, MTC and Looper control.

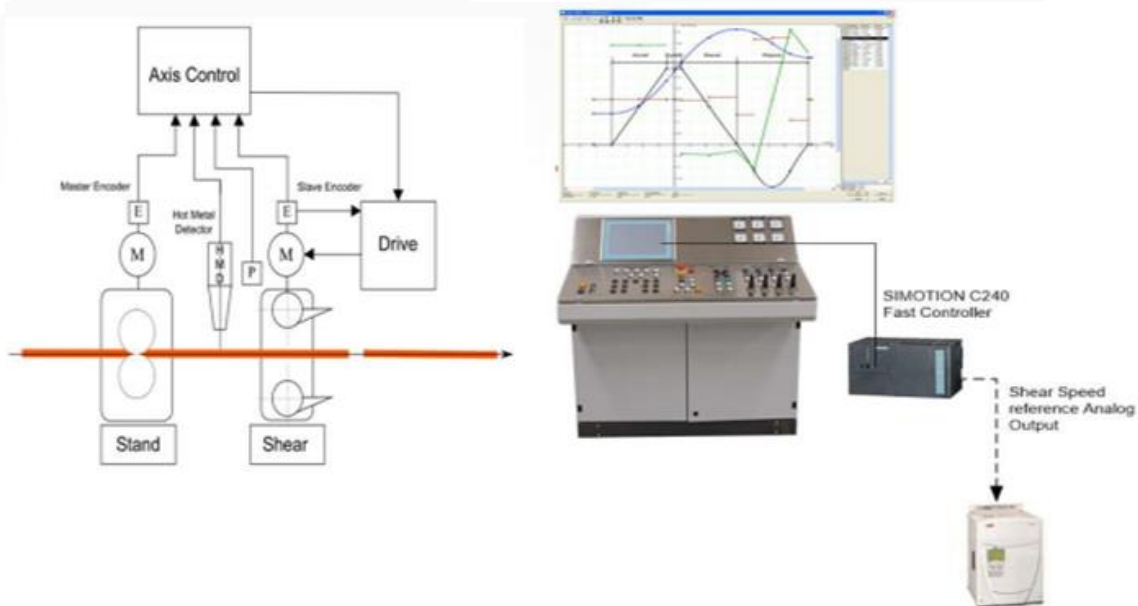


Figure 1 – Optimized motion control performance with a seamless interface to existing equipment.

The value added after the **1st phase** of commissioning could be summarized in:

1. Yield improvement

- Improving cut length accuracy for crop shears;
- Improving cut to cut length accuracy for divide shears;
- Optimization to avoid short lengths on cooling bed and reduce wastage;
- Bringing consistency and continuity in cutting processes.

2. Cut cycle simulation

The system allows the operator to simulate the presence of a billet, with a prearranged length, in transit in the rolling mill at the selected line speed. Through the simulation it is possible to verify the correct operation of every machine involved in the cutting cycle and the unloading.

3. Plant was commissioned without any additional requirements for shutdowns.

To summarize, the **achieved results** obtained after AIC intervention are:

- 1.5% yield gain;
- Improved productivity due to elimination of cobbles in the finishing area;
- High cutting accuracy and repeatability as well as cutting optimization strategy: the system automatically calculates an optimal cutting strategy to minimize material scrapping. This system can also take advantage of a pre-optimization shear to scrap the material in the middle of the rolling process.

The **2nd phase** is due for commissioning in the month of November and overall availability of the control system is expected to be improved to 99.5%.

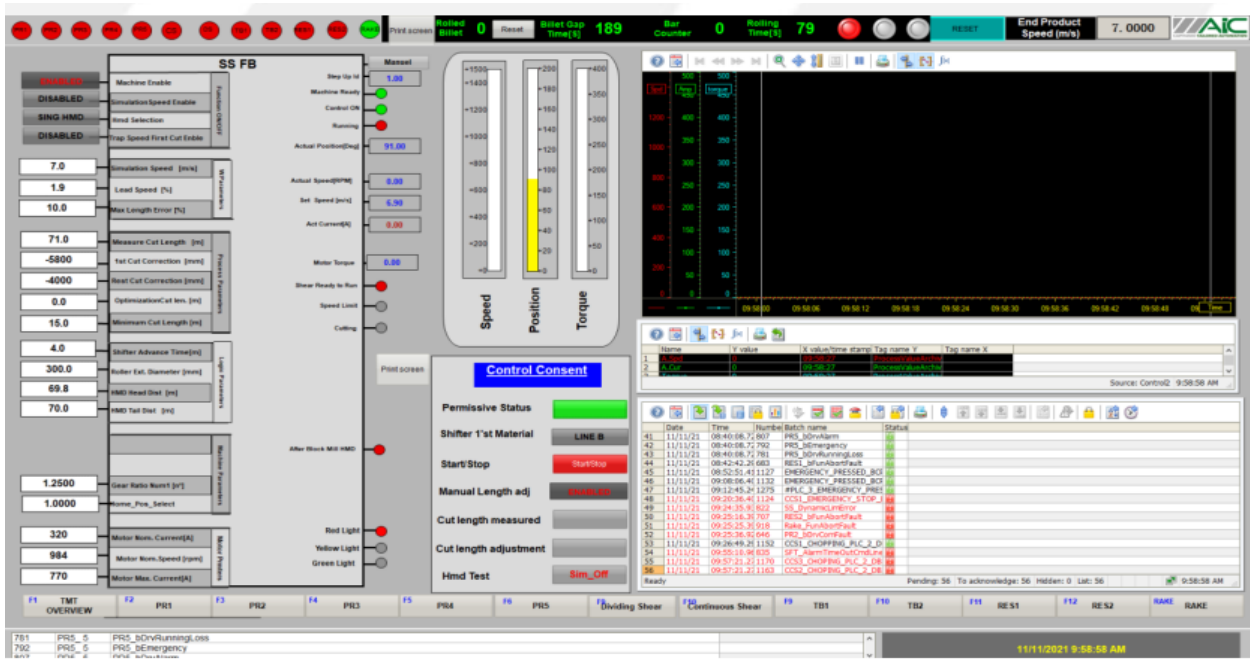
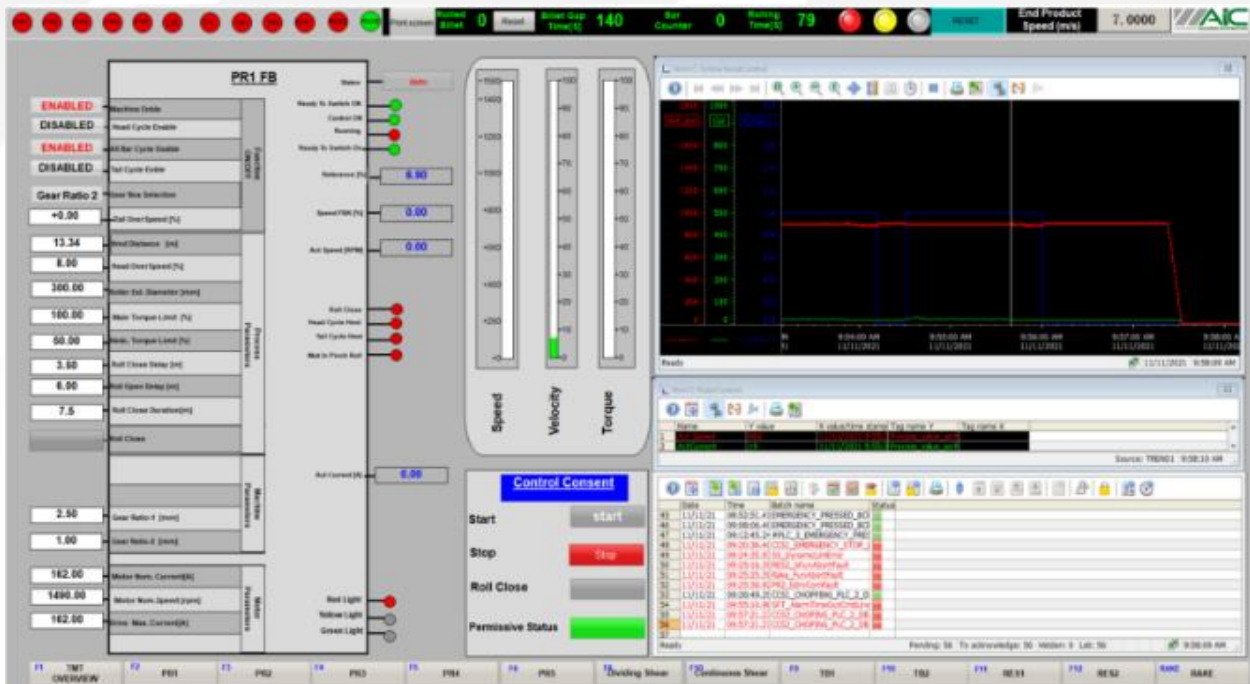


Figure 2 & 3 – Screens for equipment maintenance (adapted interface for operators).

AIC Capitanio Tailored Automation is a global system integrator that designs, manufactures and commissions turn-key plants worldwide, providing advanced and tailored automation and mechatronics solutions for the steel industry, with the aim to continuously improve both efficiencies and safety of the production processes. With more than 1500 applications worldwide and more than 45 years of history, AIC can boast a unique experience in both greenfield and revamping projects, especially in meltshops and long products rolling mills.

SMW ISPAT PVT LTD. (Formerly Known as Mahalaxmi TMT Pvt Ltd) offers steel and square bars, billets, and flat steel products. The plant is equipped with state-of-the-art pieces of machinery and the latest technology, making the plant one of the best in India.

For more information:



Raghunath Thamattur
General Director AIC India
Email: raghunath@aicnet.in
Tel: +91 80 2973 0867