

Sarla Technologies - optimising process control

The metal sector has become a key tool in the Indian economy meeting the demands of important industries like electrical & electronics, engineering, infrastructure, automobile & automobile components, packaging etc. It has become a fast-growing producer of metals like iron, crude steel, aluminium etc.

The country's iron ore production represents about 10 per cent of total world production making it 4th largest globally and is also the 5th largest producer of steel. India has maintained its lead position as world's largest producer of direct reduced iron (DRI) or sponge iron.

According to World Mining Data 2010, Asia was the leading minerals producer in the world with 7.35 billion (excluding diamonds & natural gas) metric tonne in 2008, a 6.9 per cent increase from 2007.

The metals and mining resources industry comprises aluminium, iron & steel, precious metals & minerals, coal, base metals, etc. The key challenges being faced today by the industrial sector include improving overall product quality & productivity with optimal consumption of energy and minimal GHG emissions. To meet these challenges metals & mining industry has successfully deployed industrial automation technologies like distributed

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control systems (DCS) and have reaped the benefits of enhanced safety, productivity, quality and reliability.

However, recent advances in computing, communication, sensing & control technologies has changed the scenario in the

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current automation landscape and is providing significant benefits in terms of improving the overall efficiencies.

Challenges faced by the industry

Key business drivers in the recurring and asset concentrated resources industry are reduction in power and fuel costs, supply chain efficiencies and equipment longevity. Sarla Technologies contributes by offering services across the complete plant and production process life cycle.

Some of the key challenges faced by the industry manufacturers include: sourcing complexities in wake of

globalization; varied and non-compliant business processes; lack of automation for planning and monitoring of various functions; high-cost structures and regulatory challenges.

Solutions

Sarla Technologies can help mitigate the challenges by its wide range of solutions for the metals and mining industry. These include:

- Central data acquisition with Real-Time System (RTS): Data acquisition solutions from current as well as legacy systems in real-time enabling informed decision-making and bottle-neck identification,
- Process control solutions to optimize metal & mineral processes and plants,
- Integration of plant control systems, enterprise systems or any home grown MIS systems from plant floor to enterprise level,
- Generating KPIs, real time visibility and reporting from

- various plant systems,
- Manufacturing Execution System (MES) that includes assessment of manufacturing operational processes, plant floor to enterprise systems integration and support,
- Integration of various manufacturing equipment for deriving Intelligence via dashboards and alerts, with SAP MII,
- Energy monitoring solutions to monitor the energy consumed at different sections of the plant. Energy management solutions are very necessary for the metal & mining industry. For the entire industry this is a pain area.

Business value

The company offers automation solutions that reduce cycle time, minimizing resources and energy consumption. It can also enhance operational efficiencies across the value stream of the enterprise; maximize capital asset utilization; saves costs through innovation and off-shoring while adhering to Health, Safety and Environment (HS&E) compliance.

Its expertise across metal and mining industry ranges from:
Iron & steel: Involving hot/cold rolling mills for iron & steel; steel galvanizing line, pickling line - steel processing; basic oxygen furnace (BOF); steel sheet making process and oxygen coating for steel line.
Aluminium: This includes hot/cold rolling mills for metals; multiple zone aluminium galvanizing line; alumina-making process and alumina refinery.
Coal: It comprises furnace automation coal preparation process and coal beneficiation.
Mining: This involves coal, bauxite, iron ore and other precious, semi-precious metals.

Case in a point

Sarla Technologies has provided a PIMS - Plant Information Management System - for a

leading steel company's mining section in India.

Earlier, all the productions related measurements were communicated manually via phone, e-mail and log book. The washery department always received a mismatch on tonnage figure given by mines and coal and there were many data communication gaps between the divisions of the same group. Every department was maintaining data on his/her own system. There was no common platform of data source.

Sarla Technologies' PIMS solution was based around a plant-wide data system that collected, archived and distributed tremendous volumes of real-time data at high speed significantly improving the visibility of customer operation and the bottom line. The requisite data was collected and a web-based tool was used for accessing, analyzing and visualizing production information with sophisticated trending and reporting capabilities. The solution included hardware & software components including gateway servers for connecting to the existing control systems, data base server for historian and real time information portal, manual data entry servers and Ethernet switches, for connecting the servers and clients. The company implemented Historian server that collected data in real time, in-turn helping in the identification of root causes of undesirable events such as equipment failures and product quality.

The Plant Information Management Solution has helped getting online availability of all production related measurements and having transparency of data between the departments & historical data of other departments. The company could access real time data and historical data was monitored from anywhere, via internet. There was single data repository and common reporting

system for entire department.

Similar solutions have been provided to companies like Tata Steel, Essar, Jindal Steel, Vendata and many other leading metals and mining companies.

One of the leading metal companies wanted to monitor their energy consumption. Energy monitoring solution has been implemented at the client's plant that monitors energy consumed at different utilities across various sections.

Domestic operations

Services that Sarla Technologies has provided in India include:

- Centralized Data Information Management System at Jharia,
- Blast Furnace Information System, Sinter Plant Information System, Coal Washery Info System, 70 + Local SCADA at Jamshedpur,
- HBI SCADA System, Power Plant monitoring SCADA at Hazira,
- Energy Monitoring System, pickling plant SCADA at Hazira,
- Rolling Mill level 2 system automation at Jamshedpur,
- Multiple SCADA Systems at Rourkela,
- Implementation of PIMS in mining section of a steel plant at Bokaro.

Global solutions

The company has been serving global market with its automation, manufacturing execution systems (MES) services for the process consultants, system integrators, OEMs and automation companies. Few of their projects include:

- Automation of carbon anode and cast section plants at a bauxite ore, Dubai,
- Commissioning of Basic Oxygen Furnace (BOF) at steel plant at Turkey,
- Steel sheet process automation at USA,
- Torque control and mill speed control loops at USA.