SIP 2024 PROJECT

Project No: 05

Business: Steel VJNGR

Function:

Mentor: Mr. Naveen Singh (L14) / naveen.singh@jsw.in/ +91- 9480693123)

Buddy: Mr. Mohanraj Nagarajan (L10) / Mohanraj.nagarajan@jsw.in / +91 - 72592172727

- **Project Topic : AI-based Real-time Energy optimization Model at Ironmaking**

- **Project Description :**

  Ironmaking process adopts relatively complete process technology and equipment, which provides a good research and development foundation and supporting environment for the application of blast furnace big data technology and the improvement of the level of ironmaking intelligence. The blast furnace process is a "black box" operation, and the smelting process is unpredictable. During the long-term operation of the blast furnace, a large amount of smelting process data will be accumulated, giving full play to the value of big data, and deep mining of the inherent laws contained in big data through artificial intelligence technology. Effectively forecasting and guiding production, and finally achieving refined and intelligent ironmaking, is of great significance to the steel industry

  Developed model to calculate blast energy under different furnace conditions and operating parameter constraints. Recommended operating parameter set to help operators keep blast furnace smooth operation under different material and furnace conditions

  - **Project Goals :**

    Based on the current historical production data of blast furnace, apply big data mining technology to study the relationship between furnace parameters in all Ironmaking units

    Real time optimization of input parameters including raw material, process efficiency and output to minimize the energy consumption i.e contributing to the larger cause of reducing GHG emission at steel industry

    Upon successful development & deployment at Vijayanagar, this model will be replicated across JSW Steel and Energy.