Integrated Command & Collaboration Centre (ICCC) for Vedanta Ltd. Aluminium & Power Business

About the company

Vedanta Aluminium, a part of Vedanta Limited, is India's largest producer of aluminium, producing 1.95 million tonnes per annum (MTPA) in FY19. The company has two state-of-the-art aluminium smelters at Jharsuguda, (Odisha) and at BALCO in Korba, (Chhattisgarh), with an installed capacity of ~2.2 MTPA. The smelter in Jharsuguda is one of the world's largest single-location aluminium smelters outside China. A world-class 2 MTPA alumina refinery at Lanjigarh in Kalahandi district (Odisha) has made Vedanta a premier manufacturer of metallurgical grade alumina for the company's aluminium smelters.

The company has strategically located large-scale assets with integrated power from captive power plants in Chhattisgarh and Odisha and is one of the largest private sector power generators in India. The company's power business includes Talwandi Sabo Power Limited (TSPL), a wholly-owned subsidiary of Vedanta Ltd.

Project Introduction & SOW

An Integrated Command and Collaboration Centre (ICCC) is at the core of effectively managing the various operations of plant, safety, security and other functions, mitigating unwanted situations and ensuring real-time response to inconsistent conditions. In order to synergize various operations of its Aluminium & Power Business, Vedanta intends to create a digital-technology enabled ICCC at Jharsuguda, in Odisha, India, in the form of a data room which manages the various data analytics programs deployed in its operations, in addition to operational monitoring, controlling and collaboration. Located in Jharsuguda, the ICCC will cater to the operational and decision-making needs of the entire Aluminium & Power Business.

The scope of work includes design, supply, installation, configuration, integration, commissioning and support services for the Integrated Command and Collaboration Centre. Vedanta is looking for a Master Service Integrator, who can provide the following services:

- Strong technology experience in smart city or industrial ICCC implementation, integration and operations through integrated and multi-agency coordination platform
- High quality installations of the project equipment
- Operation and maintenance of the ICCC setup to provide maximum decision-making support and enable high-performance of the systems
- Expertise for incident and emergency management
- Industrial and surveillance system management coupled with efficient usage of the system through data analytics
- Build capacity of various stakeholders for efficient operation and management of the proposed solutions

Objective

The key objective of this project is to establish a collaborative command center at Jharsuguda. Intent is to access and centrally control, monitor and command all important applications, systems and activities related to plant operations, safety and security, including emergency operations. It will also set up systems for SOP based alerts, incident management and proactive warnings/alerts. The center is proposed to be created at the company's Jharsuguda operations, in an area of ~ 3000 sq. ft.

The range of applications to be monitored by ICCC will include, but not be limited to, the following systems:

1. Smelter Business - applications and dashboards
2. Power Business - applications and dashboards
3. Logistics Control Tower application for Aluminium & Power Business
4. Commercial services
    - Vendor management
    - Commodity procurement/logistics.
5. Centralised SCADA control room for Vedanta Ltd., Jharsuguda
6. Security surveillance and situational awareness system for risk management for Vedanta Ltd., Jharsuguda
7. Fire control system for Vedanta Ltd., Jharsuguda
8. Integrated emergency management for Vedanta Ltd., Jharsuguda
9. IT assets monitoring and issue management
    - Cyber Security: for Aluminium & Power Business
    - System Incidence Management: for Aluminium & Power Business
    - Sector Wide SAP CoE (Development, Support)
    - Digital Innovation & Nerve Centre

Additionally, the scope of work includes video management and artificial intelligence-based video analytics,

1. Video Management
    - Implementing central video management solution for the company's CCTVs currently deployed in plant and township, Jharsuguda. The solution should contain supply (storage hardware as well as software), configuration, customization, integration and commissioning.
    - Vedanta shall provide the existing CCTV camera infrastructure (600+) and its servers will be hosted in data center. The partner can recommend for upgradation of existing infrastructure or deployment of new hardware (cameras) for analytics requirement.

- Currently deployed cameras belong to HIKVISION, BOSCH and DAHUA make, all of which are IP enabled. There is scope for upgradation to better/latest models, based on partner's recommendation.

2. Video Analytics
    - Video analytics software shall be user-programmable/configurable so that users can customize their own rules for relevant alerts.
    - Modes of alert can include calls, SMS, e-mail, video pop-up, PA announcements, etc.
    - Software shall make use of AI based deep learning technologies for reliability, provide alerts and useful actionable insights from live video feeds coming from cameras installed in the company's premises for the listed locations according to the use-case. The system shall use machine learning techniques to train itself in order to get accurate results.
    - The software should be able to differentiate and analyze images from video surveillance cameras in order to recognize humans, vehicles, animals and objects.