The Singareni Collieries Company Limited
(A Government Company)
Registered Office: Kothagudem Collieries – 507 101

"EXPRESSION OF INTEREST (EoI)"

Supply, installation and maintenance of Hardware/ software with solutions for the compliance of regulation No 37, 5 (c) of CMR, 2017 for establishing a tracking system with proven technology so as to identify the names of all employees/ persons working belowground at any point of time with real time monitoring solutions with location in the working places of the entire mine and utilizing the same system for the equipment /machinery for the production and productivity mapping..

The Singareni Collieries Company Limited (SCCL) is a Government coal mining company jointly owned by the Government of Telangana and Government of India on a 51:49 equity basis. Coal mining in SCCL was started in the year 1889 with a production of 0.06 Million tons and the production reached to 64 million tonnes during the year 2019-20. Presently, operating 25 underground mines and 20 opencast mines spread in 6 districts of Telangana State.

As a part of diversification, SCCL has established 2X600 MW coal based Thermal Power Plant (STPP). SCCL is also establishing 300 MW of Captive Solar PV Power Plants in vacant lands, on overburden dumps and water reservoir of thermal power plant. SCCL is planning to set up 250 MWp (DC) capacity Floating Solar PV Power Project (merchentine) on water surface area of Lower Manair Dam (LMD), Karimnagar, Telangana.

SCCL has been considered techsavy coal company and as part of underground modernization approaches, pioneering to establish communication Wi-Fi network, mobile communication and tele-monitoring systems for improving the production, productivity and personal safety.

The underground mine is having hazardous environment and the proposed system shall be physically robust and requires DGMS approvals. The proposed net work establishment may be 2km to 3km long route with 100m to 500m span of tracking system. In three km length route about, 10 locations needs to be established with tracking systems with auto transfer of data to surface in real time.

It is necessary to establish network system from surface to various locations of underground mine with the following scope and objective.

1. **Tentative scope of work**:

    a. Establishment of a communication network to various locations of the underground working places for tracking persons as per compliance of 37(5) (c) of CMR 2017 who are employed below ground mine on real time basis with probable location by RFID tag and reader / or any appropriate systems.
    a. Once such systems are made available, the same infrastructure can be used IOT enable approaches for collecting other specific data related to equipment health, production and safety monitoring on real time basis.

2. **Objective** :
    a. The company is intending to establish communication network to various working places of underground to track the location of persons by RFID tag and reader / or any appropriate systems. The proposed communication network to various working places of underground shall also collect data through IOT enabled approaches from various equipment health production monitoring and other safety related activities.
    b. It is intended to take up a pilot project for a part of the mine at GDK11 Incline and on the success of the objectivity; it can be extended to other locations of GDK 11 mine and other nine UG mines.

3. **Establishment of connectivity network** :
    a. The firm shall supply and install the back bone data communication by OFC and last mile connectivity by Wi-Fi routers.
    b. At required locations the Wi-Fi routers / access point shall be installed on the OFC cable to create hotspot in underground. The Wi-Fi router/access point shall be capable of capturing signal from a distance of 100 m based on the line of sight in underground environment. Where ever required, the Wi-Fi zone shall be established by hopping of the Wi-Fi access points / routers.
    c. RFID readers or any appropriate system shall be installed at the locations and zones to track persons employed /equipment deployed. They shall be capable of tracking the employees from about 50m distance under normal conditions. The data from the RFID readers/ any appropriate system shall be communicate to the surface through established Wi-Fi / OFC network. The firm shall make suitable system for conversion of the signal & protocol.

        The system requires the usage of RF (Radio Frequency) active readers with an omni-directional antenna that provides a circular coverage area of minimum 100 meters line of sight.

d. Some of the equipment of SCCL is provided with data ports of RS 485, with modbus protocol. The firm shall collect this data and convert to Wi-Fi / OFC network in TCP/IP protocol.
e. The UG networks established shall be connected to the SCCL intranet for integrated communication system.
f. As and when SCCL procure the IP based wireless telephones, shall be integrated in the underground work.
g. All the equipment to be used in underground shall be flame proof or intrinsically safe and shall be approved by DGMS.
h. The power supply in underground is 110 V. (where ever available SCCL may provide 24 V power supply)
i. The equipment shall be provided with rechargeable battery back up to provide continuity of communication and tracking in case of emergencies at least for 16 hours after the charging.
j. At each site, based on the site requirements the required network configuration shall be mutually worked out and the material as required shall be supplied and installed.
k. The firm shall provide a central server on SCCL network with license software.
l. All the components shall comply to the IS: 2148-1981, IS: 5780-1980 standards and also required BIS Licensing. Permissions also are to be obtained under Coal Mines Regulation 208 (3) of CMR, 2017.

4. **Data acquisition from underground on real time basis:**
    a. The persons / equipment shall be provided with RFID active / passive tags or any appropriate system so as to communicate.
    b. SCCL shall make arrangements to provide data from its various equipment in RS-485 signal in modbus protocol and to communicate to surface on the established network.

5. **Application Software** :
    a. The firm shall provide data base server with license on central server.
    b. SCCL desires the data base of Oracle 10 G or latest versions with VB .net application software.
    c. The data acquired from underground shall be captured into the designed data base for development of various other applications.
    d. Persons tracking :
    e. Equipment tracking, production and equipment performance :
    f. Monitoring of environment and ventilation status.
    g. Integration with SAP: provide data for porting to SAP.

h. The source code shall be provided to the SCCL. SCCL reserves the right to enhance the software as per the requirements by in house team or any other party at its discretion. However SCCL will not market the software or allow any other service provider to sell the software.

6. Implementation schedule.
    a. Initially it is proposed for establishment of the system in a part of the mine at GDK11 Incline.
    b. The firm shall supply the material and install the same. The actual quantities as required at the site shall be supplied and the payments shall be according to the supplies.
    c. The subsequent implementations at other projects are only on the success of the pilot to the satisfaction of the SCCL. SCCL reserves the right to withdraw from the subsequent implementation at any stage even if, the pilot is successful. The subsequent implementation is only on placement of the confirmatory orders on success of the pilot project.
    d. The pilot project shall be completed within 9 months on placement of the order. Subsequent implementation shall be at a rate of 3 mines at a time and 4 months for each set.

7. Enhancements and Maintenance :
    a. The locations in underground mines are dynamic and working places/locations will be moving and relocating to another site in short span of time. The firm shall arrange spare/additional equipment at the quoted price and install them in the mine to maintain the network as per the changing mine requirements. The firm shall deploy one service engineer on regional concept and shall attend the system within two hours of the failure.
    b. Any additional reports and functionalities required to be built on the software as and when required. In addition to maintaining the developed applications, any new applications that may need also to be built. The firm shall deploy one qualified programmer for the purpose.
    c. The firm shall be responsible for maintenance at the quoted price for 5 years.

SCCL invites Expression of Interest (EoI) from firms with requisite technical know-how; experience in utilization of hardware and software related to the above scope of work.

SCCL wishes to have a pre bid interactive session (through VC) with the interested & experienced agencies/contractors to firm up NIT specifications & scope of work.

The interested & experienced agencies/contractors are required to attend pre-tender vendor meeting at 11.00 AM on 05.08.2021 either physically along with their credentials at Video Conference Hall, SCCL Head Office, Kothagudem or through VC. The prospecting bidders can also send queries by mail, if any, to SCCL prior to the proposed pre-tender vendor meeting. The firms are requested to inform their willingness to the following address on or before 03.08.2021 to enable us to share VC link to their mail IDs for virtual participation.

General Manager,
Research and development
The Singareni Collieries Company Ltd.,
PO: Kothagudem Collieries – 507 101
Bhadradri kothagudem Dist. Telangana State, India.
Tel. No. (08744) 245647 ,Fax No. (08744) 241362/242305
e- mail ID: gm_rnd@scclmines.com

The Singareni Collieries Company Limited reserves the right to accept / reject any offer in full or part or all the offers without assigning any reasons whatsoever.

General Manager (R&D)