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 64.41 Million tons during the year 2018-19. Presently, operating 29 Underground mines and 19 Opencast mines Spread in 6 districts of Telangana State.

The communication plays vital role in day to day activities and Modern Information Technology like Wi-Fi Network, Mobile communication and tele-monitoring systems will be of immense help in improving the production, productivity and personal safety in underground mines.

The underground mine is having hazardous environment and the system equipment shall be physically robust and requires DGMS approvals. The proposed net work establishment may be 2 to 3 KM long route with 100 m to 500 m 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. As per 37(5) (C ) of CMR 2017 it is mandatory for establishment of a system to track the location of the persons working in the mine at any point of time.
   b. This require establishment of a communication network to various locations of the underground, identification system for tracking men and their location by RFID tag and reader OR similar systems.
c. Once such systems are made available, the same infrastructure can be used for collecting other data related to production and safety and on line monitoring of the mine.

2. **Objective**:
   a. The company is intending to establish communication network to various underground mines to track the location of persons by **RFID tags or similar devices**. The system proposed shall also collect data from various equipment to monitor production, productivity and other safety related activities.
   b. It is intended to take up a pilot project for a part of the mine at PVK 5 incline on the success of which it shall be extended to other locations and 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 Wifi routers.
   b. At required locations the Wifi routers / Access point shall be installed on the OFC cable to create hotspot in underground. The Wifi router/access point shall be capable of capturing signal from a distance of 100m based on the line of sight in underground environment. Where ever required , the wifi zone shall be established by hopping of the wifi access points / routers.
   c. To track persons /equipment , at the required locations and zones RFID readers shall be installed. They shall be capable of reading the RFID tags from about 50m distance under normal conditions. The data from the RFID readers shall be communicated to the surface through wifi / 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 are provided with data ports of RS 485 , with modbus protocol. The firm shall collect this data and convert to wifi / 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 Battery back up to provide continuity of communication and tracking in case of emergencies at least for 16 hours after the power.

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 real time basis:**
   a. The persons / equipment shall be provided with RFID active / passive tags. The location of the person / equipment shall be read by the readers and shall be communicate to surface.
   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. Men 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 and SCCL shall reserve 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 PVK 5 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.

d. The pilot 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 underground locations in underground mines are so dynamic and workings places/locations will be moving and relocating to another site. 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 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’s and software’s related to the above scope of work.

The interested agencies are requested to submit the ‘EOI’ for their intendedness in establishment of the assigned work as indicated in the tentative scope and other procedures of the system.

The ‘EoI’ shall reach the following address on or before 20.06.2019 and a pretender vendor meet shall be organised on 25/06/2019 at Singareni Bhavan, Hyderabad by 3-00 PM.

General Manager,
Research and development
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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)