



RADIOLINX



RadioLinX Wireless Modems

**Coke Oven Plant
Wireless Application
BY
Sheetal wireless
Tech Pvt Ltd**

Success Case – Coke Oven Plant

- **Customer Information**

- SISCO—Southern Iron & Steel Company Limited,
- Jindal South West.
- Dist. Salem, TamilNadu, India
- Privately owned
- Customer contact
 - T.K. Theepan, Sr. Manager Electrical, SISCO, Jindal South West

- **Project handled by**

- Rockwell Automation India Pvt Ltd., Sahibabad, India
- Sheetal Wireless Technologies Pvt. Ltd., Pune, India

Success Case – Coke Oven Plant

- **Automation System Composition**
 - ControlLogix (L63) Processor with 1756 I/Os in Central Control Room
 - EtherNet Adapter (1794-AENT) with Flex 1794 I/Os in Pusher Car
 - FlexLogix (5434) Processor with Flex 1794 I/Os in Quenching Car
 - 3 nos. of RLX-IH
 - RLX-IH in CCR is fitted with one 6 db antenna.
 - RLX-IH in Pusher Car is fitted with two 6 db antennas.
 - RLX-IH in Quenching Car is fitted with two 6 db antennas.
 - The maximum distance of communication between CCR & Pusher / Quenching Car is 600 m.
 - One RS View 32 SCADA system in CCR.

Success Case – Coke Oven Plant

- **Customer Issues and Requirements**
 - New Installation
 - Pusher & Quenching Cars supplied by Chinese OEM
 - Automation in CCR with Pusher & Quenching Cars being done by RA India
 - Very Complex Line-of-sight
 - Harsh environment:
 - Very high temperatures due to oven
 - Vibration of the moving parts
 - Too much electromagnetic interference
 - Physical structure very reflexive (100% steel)

Success Case – Coke Oven Plant

- **Coking Machine Composition**

- One Pusher Car.
- One Quenching Car.
- CCR room at the top of the Coal Bunker.
- Each one having EtherNet /IP connectivity—CCR has CLX(L63 Processor) with 1756 I/Os, Pusher Car has EtherNet Adapter (1794-AENT) with Flex 1794 I/Os and Quenching Car has FlexLogix (5434 Processor) with Flex 1794 I/Os.

- **Wireless system requirements**

- Data exchange among all Control Blocks---CCR – Pusher Car - Quenching Car.
- SCADA system to have access to each & every I/O & Processor data for supervision.

Success Case – Coke Oven Plant

- **Challenges**

- Consistent links among CCR-Pusher Car-Quenching Car control systems.
- LOS for all the moving parts – very hard
 - Pusher Car moves on one side of the machine structure.
 - Quenching Car moves on the other side of the machine structure.
- When Partial LOS ,the radio programmed as repeater and using Self healing feature the entire length of communication is achieved
 - Radio act as Repeater
 - Self Healing feature.(i.e. whenever any remote radio does not have line of site or communication with master then it automatically look for another radios in the network which has communication link with Master and sends the data through the particular radio)

Achievements

- Order Taken in late 2006.
- System implemented in early 2007.
- Three RLX-IH's sold.
- Teaming of Radio Distributor with RA GMS Project group.
- Two point-to-point Links (L63->5434 and L63->AENT) established successfully with signal strengths of (-70dBm and -78dBm resp.) for maximum required distance of communication (about 600mtrs).
- Also Link between "FlexLogix 5434 and 1794AENT" successfully tested.
- Customer very satisfied with the solution.

Coking Machine Running track view



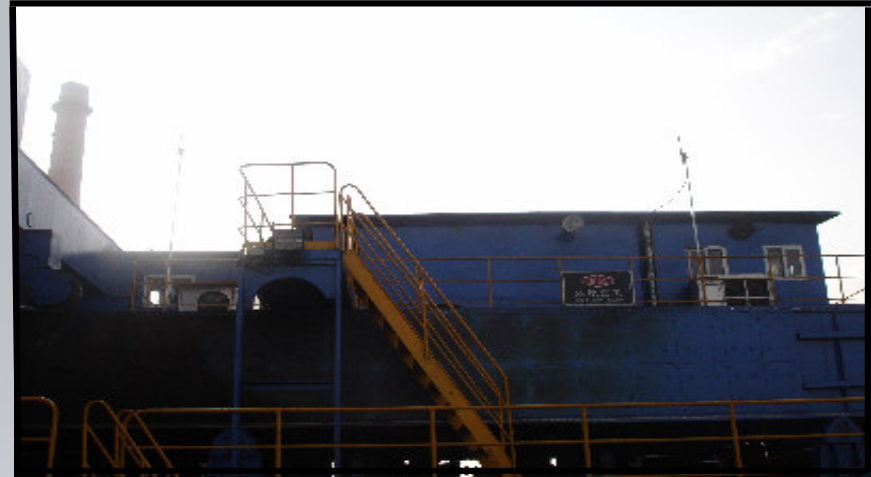
CCR View



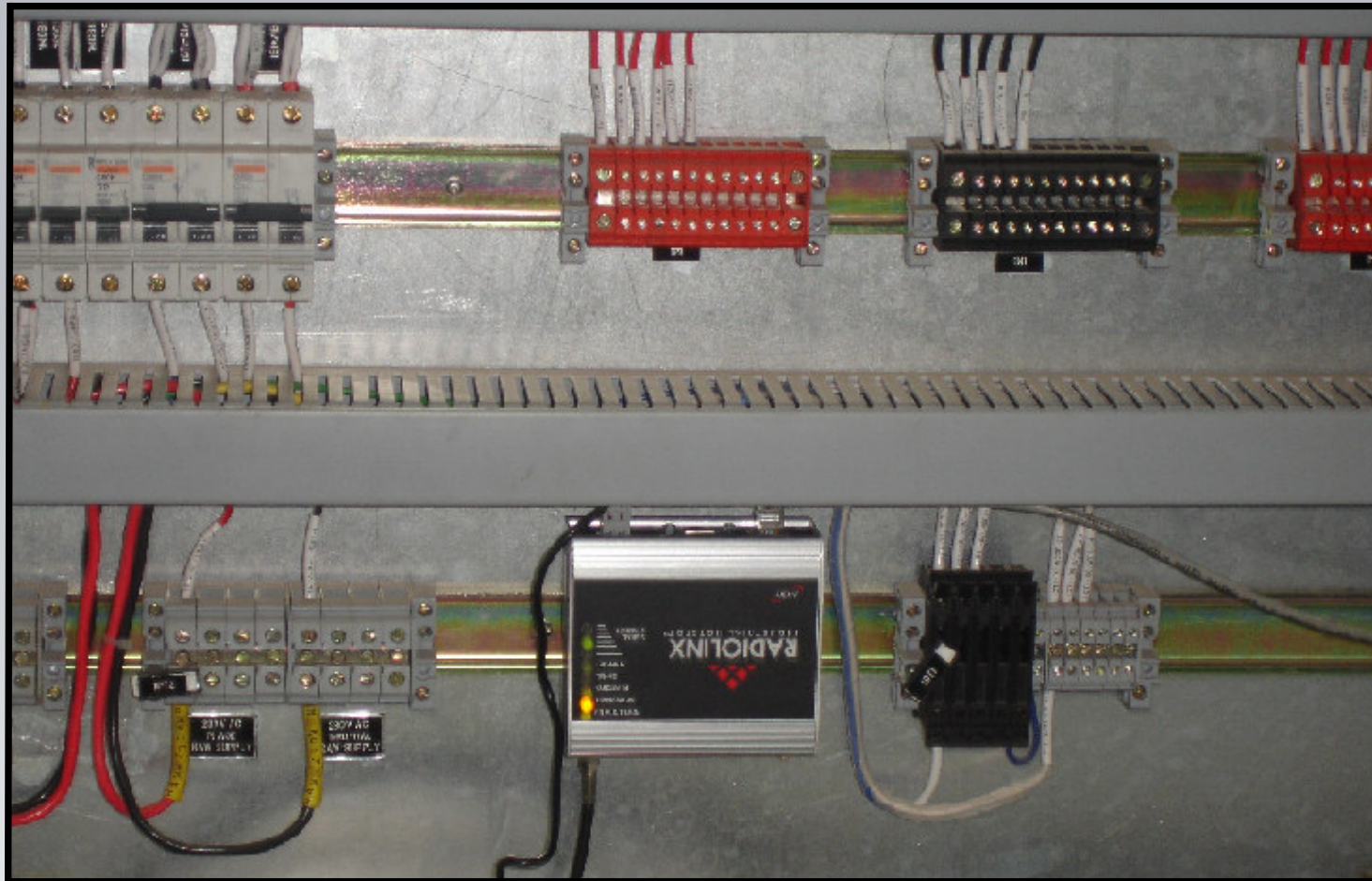
Pusher Car Antenna View



Quenching Car Antenna View



CCR Radio View



Pusher & Quenching Car Radio View

