Sheetal Wireless Technologies Pvt. Ltd
Wireless Communication for

AUTOMIZED PIPE TRANSFER TROLLEY

BY

Sheetal Wireless Tech Pvt Ltd
Success Case – Pipe transfer Trolley control and monitoring

- Customer Information
  - Welspun Tubular LLC, USA
    200, Ridgeway Drive, Little Rock, Arkansas 72205, USA
- Automation Project handled by
  - Cabinet Systems & Controls Pvt Ltd, Pune
- Wireless Communication System
  - Sheetal Wireless Technologies Pvt. Ltd., Pune, India
Automation System Composition

- Automation system consist of 6 No of trolleys moving on six independent rail tracks on the shop floor.

- Pipes of 1 meter to 3 meter diameter are loaded on the trolley.

- Trolleys are controlled and monitored from the master control station located on the same shop floor.

- Shop floor dimensions
  - Length X breadth = 300 meter x 150 meter
  - Area = 45,000 m²

- GE Fanuc RX3I Master PLC is located at control station.

- Versamax series IC200, Ethernet slave is located on the mobile trolleys.

- Maximum distance between the trolley and the control station is 200 meters.
Wireless communication details

- RLX-IH 802.11 b radios, 2.4 GHz operating speed with 11 MBPS data transfer speed are used for communication between the trolley and Control station.

- RLX-IH radio modem is interfaced with Versamax series IC200, Ethernet slave one on each trolley.

- At master control location RLX-IH radio modem is interfaced with GE Fanuc RX3I Master PLC.

- Control Station Point-to-Two Mobile station, Multipoint Links are established.

- As the trolley gets loaded with pipes, line of sight is obscured. To overcome this situation, RF system is designed in such a way that communication can take place between Control Station and the trolley even with No line of sight situation.

- Rugged and specially designed Antennas mounted on the trolley so that it can sustain the vibrations and do not get easily tampered.
WIRELESS NETWORK

Rail track No 1

Rail track No 2

Rail track No 3

Rail track No 4

Rail track No 5

Rail track No 6

Main RF link

Repeater redundant RF link

Radio-Repeater mode

Magnetic Mount Antenna

Omni directional Antenna

Radio-MASTER

Pillar

Trolley -1

Trolley -2

Trolley -3

Trolley -4

Trolley -5

Trolley -6
ACHIEVEMENT

- Point-to-Multi Point Links established for maximum required distance of communication about 130mtrs with No line of sight situation.

- RF network architecture is established in such a way that communication is established even with No line of sight situation

- Customer very satisfied with the solution.