Vision
‘To provide insight for enhancing wealth’
INSIGHT - refers to TRUTH. Our Vision is to develop Products & Solutions to the Customers which provide truthful information that can optimize & improve the Business Process.

Quality Policy
“We shall provide information technology products/services that exceed customer expectations in their functionality, usability, reliability, performance, adaptability and supportability to achieve market leadership and continual improvement of business performance”

Mission
To provide freedom of creativity/innovation in exploiting the potential of information technology.

Gartner
Client for understanding the Technology trends & Market Trends in ICT

CIO Choice – 2017’ Award

30+ Years of Product Expertise by harnessing latest technologies

50,000 SQFT facility for various activities

In-House Manufacturing facility with 100+ Staff

100+ Engineers in Research & Development (R&D)

OEM Partner
ORACLE®
ptc
ThingWorx

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ptc
ThingWorx
Building End-End Smart IoT Solutions

Embedded Systems & Application Software

700+ People

Conceive
- Concept

Develop
- Analysis
- Design
- S/W & H/W Implementation
- Integration
- Testing

Manufacture
- Assembling
- Quality Testing

Implement
- Installation
- Configuration

Support
- Commissioning
- Maintaining
OUR DEVELOPMENT PROCESS

Design Thinking

TECHNOLOGY
- What can technology do feasibility

BUSINESS
- Viable
- Sustainable
- What value is going to get/give

PEOPLE
- Desires
- Needs

FUNCTIONAL INNOVATION
PROCESS INNOVATION
EMOTIONAL INNOVATION
INNOVATION
DESIGN CAPABILITIES

Proven Expertise In Building end-to-end IoT Solutions

- Building Systems of Systems
- Algorithms & Analytics
- Access
- Storage
- Edge Processing
- Communicate
- Sense & Control
MANUFACTURING
Planning and Scheduling and Tracking of orders through ERP

➢ PRODUCTION: 15,000 -SFT AREA 100 -MEMBERS
➢ Following standard processes like IPC & J-STD
➢ Detailed planning and scheduling and tracking of orders through ERP
➢ Implementation of seamless tracking and tracing of material, components and products
➢ Just in time Supply Chain
➢ Chain Process to optimize time, cost and improve quality
➢ Automated Testers
➢ 5S Implementation
➢ 10 Units per shift capacity
Foot Print

12000+
Product deployments

9000+
Locations

120+
Service Centers

Deployment in Railways

<table>
<thead>
<tr>
<th>Products</th>
<th>India</th>
<th>Srilanka</th>
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<tr>
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<td>10785</td>
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</tr>
<tr>
<td>Electronic Block Instrument</td>
<td>45</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
IT - DRIVING BUSINESS

1. Enterprise Resource Planning
   - Complete Order Tracking
   - Financial Management
   - Products BOMs & Configuration Management
   - Vendor Evaluation
   - Just In Time Procurement
   - Inventory & Tracking
   - Finished Products Tracking
   - Integration with Mobility/Mail Alert

2. Order Management System
   - Auto Integration With ERP
   - Optimized Sale Orders
   - Execution Planner
   - Inventory Projection Tool

3. Cash Flow
   - Control of Inflow and Outflow of Cash
   - Visualize Future Incoming and Outgoing of Cash
   - Mobile Integration

4. R&D Project Planner
   - Leads to Quotation Integration
   - Integration with ERP
   - Mobile and Web Platform
   - Analytics

5. Time Attendance Management System

6. Customer Relationship Management
   - Leads to Quotation Integration
   - Integration with ERP
   - Mobile and Web Platform
   - Analytics
DATA DRIVEN DECISIONS

Collaboration – Share Point

1. Self-awareness – just to watch your thoughts, able to see what your thinking & to be aware that u are the creator of these thoughts.

2. Second step is to check whether this thinking is the right kind of thinking for me.

3. Third step can I change this thought.

Data Analytics – Power BI
• Running **M. Sc. (IoT)** Course for **Krishna University**, **M. TECH. (IoT)** for **JNTU Anantapur**

• MOUs with 15+ Engineering and science colleges for faculty and student development programs

• Continuous learning program for employees

• Activity based learning

• Collaboration with AP Skill Development Centre & MSME
YOUR ONE-STOP DESTINATION FOR
END-TO-END SMART SOLUTIONS

Data Logger System
LC gate warning system
DC track machine & point machine health monitoring
Integrated passenger information system
Digital clocks with GPS synchronization
Signal ahead alert system
Wrong operation indication system
System integrity tester
Solid state block proving by axle counter

Electronic Manufacturing Services
Product Development Services

for 24/7 operation
under Harsh Indian Environment Conditions

Online Distributed Appliance Control
Energy Information System
Multimedia Control
Lighting Control
Safety & Security
Indoor Air Quality Monitoring System
Gates & Blind Control

Smart Energy Conservation
Solid Waste Management
Command Control Centre
Smart Transport
Smart Environment
Smart Water
2017-02-09

<table>
<thead>
<tr>
<th>Excess Supply Count</th>
<th>Excess Supply</th>
<th>Deficient Supply Count</th>
<th>Deficient Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>3992 KL</td>
<td>13</td>
<td>20324 KL</td>
</tr>
<tr>
<td></td>
<td>7.1%</td>
<td>36.15%</td>
<td></td>
</tr>
</tbody>
</table>
Smart Water

Current problems

- Potability
- Limited Supply
- Wastage
- Uneven Distribution

OBJECTIVES

- To ensure right quantity of water daily to the public at right time
- To ensure right quality of water to be distributed daily
- To reduce cost of per unit water
- Uniform distribution
- Total Accountability
- Continuous Monitoring
- Reports & Records

SOLUTION
Insights from Analytics
### Impact of Actions taken to eradicate Leakages

**Reduction in UFW for 8MGD plant**

<table>
<thead>
<tr>
<th>Plant Outflow (MGD)</th>
<th>Sum of all the reservoirs</th>
<th>UFW per day (MGD)</th>
<th>UFW</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.52</td>
<td>5.77</td>
<td>2.75</td>
<td>32.3 %</td>
</tr>
<tr>
<td>8.41</td>
<td>5.96</td>
<td>2.45</td>
<td>29.1 %</td>
</tr>
<tr>
<td>9.15</td>
<td>7.24</td>
<td>1.91</td>
<td>20.9 %</td>
</tr>
<tr>
<td>8.80</td>
<td>7.07</td>
<td>1.73</td>
<td>19.7 %</td>
</tr>
<tr>
<td>9.13</td>
<td>7.33</td>
<td>1.80</td>
<td>19.8 %</td>
</tr>
<tr>
<td>8.01</td>
<td>6.59</td>
<td>1.42</td>
<td>17.7 %</td>
</tr>
<tr>
<td>5.10</td>
<td>4.27</td>
<td>0.83</td>
<td>16.3 %</td>
</tr>
<tr>
<td>8.15</td>
<td>7.39</td>
<td>0.76</td>
<td>9.4 %</td>
</tr>
<tr>
<td>7.51</td>
<td>7.09</td>
<td>0.42</td>
<td>5.5 %</td>
</tr>
</tbody>
</table>
Supply Shortfall & Mitigation
4 OCT 2009 TO 7 OCT 2009

Objective under flood situation:
- To provide safe drinking water
- To provide minimum water equally to everyone

Situation under flood:
- Total installed capacity of Head Water Works: 40 MGD
- Treatment Plants shutdown due to flood: 19 MGD
- Operational capacity: 21 MGD
- Acute shortfall: ~50%
Cleaning of Reservoirs:

Monitoring of Tank Cleaning
Chlorination of Water:

Chlorination of Water
Estimate **Demand** w.r.t each area

High Demand Reservoir

Meeting required Demand
Estimate Demand w.r.t each area

- Under Utilized
- High Demand
Smart Environment

Current problems

- Over Pollution
- Health Effects
- Environmental Disasters

OBJECTIVES

- To improve the Quality of life by improving Quality of living spaces
- To prevent the negative effects of pollution on nature and our lives too
- To communicate safety measures with public during environmental disasters

Measured Parameters

- Rainfall
- Air Temperature
- Soil Moisture
- Leaf Wetness
- Relative Humidity
- Atmospheric Pressure
- Wind Speed & Direction
- Visibility
- and more....

Quick Weather Forecasting, Analysing & Passing Information To Public
Smart Cities > Environment Monitoring

Analytic Weather Report

Weather on Portal

Display Board
Solutions

Urban Flood Monitoring System

Air Quality Monitoring Systems
Current problems

- Accidents
- Traffic Congestion
- Environmental impacts and energy consumption
- Public transport inadequacy

OBJECTIVES

- To ensure safe journey with increase in operational efficiency
- To provide ultimate control over city traffic system
- To provide real-time information for better customer services

Adaptive Traffic Signals
Variable Message Signage
Bus Destination displays
Solar Blinker
Public Address System
Bus-stop displays
Benefits

- Smooth journey
- Reduces Accidents
- Effective Time Utilization
- Access Control
- Monitoring Abnormalities
- 24/7 Operation
- Scheduling
- Central Controlling

Architecture
Smart Cities > We are aiming

Safe movement of pedestrians

Signals control based on traffic and priority

Integrated Command Control Centre

- Reduction of Travel times by 15%
- Pollution Reduction
- Increased safety and comfort
**OBJECTIVES**

To light the streets with well integrated lighting system

To provide Eco-friendly lighting with easy maintenance

To lessen power consumption & energy wastages

**SOLUTION**

Appliance control through app

24x7 Battery monitoring

Visually comfortable Lights

Real-Time data collection

**Current problems**

Uncontrolled light intensities

Manual controlling of Remote area appliances

Difficult to notice battery state & working efficiency: Charging, Discharging, Idle

Untimely appliances running in people absence
Solutions

Online Distributed Appliance Control

Smart Street Lighting

Battery Health Monitoring Unit
Smart Signaling

- Improve Average Speed of train by 20%
- Identifies Traffic Bottle-Necks
- Helps Planners To Optimize Train Operations
- Predictive Maintenance of Signalling Assets
- Reduce the Maintenance Cost
- Improve Availability by MTTR & MTBF
- Signaling System Health Monitoring

To provide insight for enhancing wealth
IoT Edge System
- Works as a black box for Railway Yard for signalling System
- Capture all relay status and analogue parameters in the relay room.

Predictive Maintenance System
- Predicts the failures much ahead by real time analysis of point machine voltages and currents
- Improves MTTR and MTBF of system

Remote Condition Monitoring
- Provides remote condition monitoring of various power supplies with in railway yard
- Identified faulty module in power distribution and informs the railway personnel

Battery Health Monitoring Unit
- Provides remote condition monitoring of various power supplies with in railway yard
- Identified faulty module in power distribution and informs the railway personnel

Control Centers
- Real-time simulation of yard
- Predictive Maintenance of railway assets
- MIS Reports
- Network Management

Safety Point Alarm Units
- Prevent failures & Improve Operations
- Eliminates accidents at railroad points through prescriptive alert to station master

Block Instruments
- SIL-4 Certified
- 2o/o3 Architecture
- Complies to European CENELEC standards
- First in INDIA to develop the product and get approval

Integrated Power Supply Monitoring
- Provides remote condition monitoring of various power supplies with in railway yard
- Identified faulty module in power distribution and informs the railway personnel

Point Machine Monitoring
- Provides remote condition monitoring of various power supplies with in railway yard
- Identified faulty module in power distribution and informs the railway personnel

Data Loggers & RTUs
- Works as a black box for Railway Yard for signalling System
- Capture all relay status and analogue parameters in the relay room.
Indigenously Designed, Built, Deployed and Maintaining one of India’s Largest IoT Network for Indian Railways
Railways IoT Network

6+ Million Things
of Railway Signaling System
Connected To 200+
Command Control Centers
across the country

22+ Million Records
Generated Everyday

12k Products
Installed in More than 7000
Stations in India

International Foot Print @
Srilanka, Bangladesh, Poland

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Smart Signalling > Data Logger

Black Box for Railway Station
Smart Signalling > Predictive Train Operations

Multi Monitor Simulation Networked Data loggers in Vijayawada Division Control Office
Smart Signalling > Point Machine Health Monitoring Unit
Smart Signalling

Point Machine Monitoring

1. Monitors Point machine operating current
2. Zigbee technology is used to wireless data communication
3. Monitors Feed and Relay end currents of Track circuit

Feed end and Relay end Currents
Point Current Signature
Point Operations Report

Failure Analysis System
Event Logger
Data Logger
Control Room
Mini Logger

Monitors Point machine operating current
Zigbee technology is used to wireless data communication
Monitors Feed and Relay end currents of Track circuit
Battery Health Monitoring System (BHMS) is an intelligent system that monitors battery health & efficiency to provide safe guidance & improve battery performance.

**BHMS Monitors**

- Bank & Individual Battery / Cell voltages
- Charging, Discharging currents
- Load currents (Optional)
- Internal Resistance (Calculated at Battery Bank Discharge)
- Ambient temperature of Battery environment
- Terminal Temperature of Batteries / Cells (Optional)
- Charged AH, Discharged AH & Net charge of Battery Bank
- Various reports for identifying the Failures & Utilization of Battery Bank
System Integrity Test

Software & Hardware development & implementation for System Integrity Test as per Table of Control /Route Control Chart.

Conducted at 48 stations

Identified 975 defects of design & implementation of interlocking
By wiring potential free contacts of ELD to data logger and identifying the relays:

- Which power the conductors
- Which are powered by the conductors

External defective cable pair responsible for earth fault can be identified by CMU alarms software.

This is a software product – one software for each CMU is required.

It runs on the already available CMU PC.
Smart Signalling

Command Control Centers

Trouble shooting guidance by Supervisors to Technician in the Station

- Data Synchronisation between all stakeholders of the system
- Data archiving, Reports, Escalation
Signals
RDSO Approved

2-way LED stencil route indicator

Long Visibility

4-way LED stencil route indicator

Energy Saving

Single digit Route indicator

Maintenance Free

Double digit Route indicator

SIL-4 Certified

A - Markers

Quality & Reliability

Route indicator

Fail Safe System

Shunt Signals

SIL-4 Certified

Calling on

Smart Signalling

To provide insight for enhancing铁路

Fail Safe System

Innovative Signal Systems

RDSO Approved

Signals

Main Signals
Monitors Power supply of each and every station

1. Supervisory Unit captures diagnostic data from IPS and sends to Data logger.
2. Data can be seen in local PC and Test room CMU.
3. Important alarms can be sent as SMS and overall status can be sent to OEM by automatically from Test room.

SMS escalation for Failures
Smart Signalling > Passenger Information System
Leverage technology - Railways to meet challenges

- Auto charting
- Decision Support System to controller

- Enable Integrated timetable system for IR
- Identify traffic bottle necks - Suggest best solution to reduce journey times by 20%
Smart signalling system – summing up

1. Zero accidents
2. Efficient operations
3. Identifies traffic bottlenecks
4. Remote Condition Monitoring

We are aiming
SMART BUILDINGS
Smart Buildings

Life made Easy, Secure & Smart

Indoor Air Quality
Appliance Control
Safety & Security
Gate & Blind Control
Lighting Control
Energy Monitoring
Smart Buildings > Lighting Solutions

Products

Lighting Solutions

Smart Solutions
We Sell Light Not Lights

➢ Dynamic theme Lighting
➢ Distribute light where you want
➢ Control through SMART Apps
➢ Tailor made lighting solutions
➢ High CRI, Energy Efficient
➢ Mentioned as Smart Lighting Vendor in Gartner Report
Indoor Air Quality Monitoring System

BEDROOMS/LIVING ROOMS
Thermal comfort and Air freshness (Temperature, Relative Humidity & CO2)

KITCHEN
Ventilation & Thermal comfort (Temperature, Relative Humidity, CO2 & VOC's)

TOILETS
Thermal comfort and Air freshness (Temperature, Relative Humidity & CO2)

Energy Information System

Client PC
EIS Data Loggers
LAN
EIS Data Loggers
LAN
Client PC

Energy Monitoring Modules
EIS Data Loggers

Effie Home
Smart Building
Life made easy, secure & smart
IoT Solutions > Real Time Location System (RTLS)

Identify and track the location of people and assets in real time.
Internet of Things

Real Time Location Tracking System

- Can track indoors
- ✓ Critical Assets
- ✓ Workers in Critical areas

Access Control System

- Exported to USA
<table>
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<tr>
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<td>iCON</td>
<td>Ramakrishna Housing</td>
<td>Ford</td>
</tr>
<tr>
<td>ALSTOM</td>
<td>KamAreneni Hospitals</td>
<td>JICA</td>
</tr>
<tr>
<td>Power Mech</td>
<td>Ramesh Hospitals</td>
<td>LT</td>
</tr>
<tr>
<td>Kyosan Denki Co., Ltd</td>
<td>Frauscher Sensor Technology</td>
<td>Vijayawada Municipal Corporation</td>
</tr>
<tr>
<td>Siemens</td>
<td>Various Industries</td>
<td>Honeywell</td>
</tr>
<tr>
<td>Rail Vikas Nigam Limited</td>
<td>Various House Holds</td>
<td>Various Municipal Corporation</td>
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