itec s.a.l
IndustrialTechnologies

Certified by
PI
PROFIBUS • PROFINET

ITEC

vision of integrating emerging technologies in the Automation and Information systems industries.

Automation Center 1

PROOF of Concept Center:

Where ITEC team has tailored different
Industrial and Buildings management scenarios

Automation Center 2

To include Industrial networking and integrating solutions. Based on PROFIBUS and PROFINET technologies, to include many other industrial buses such as: Modbus, EtherCat, GPRS, DeviceNet, CanOpen and many others

Automation Center 3

To include a full SCADA application, and Process instrumentation, Motion Control applications, SAFETY Automation, Distributed I/O's, Embedded PLC, CNC application and a lot more…

Municipal Solid Waste Treatment Plant

Saida - Lebanon

Saida Project

Saida Wastewater Project: Engineering & Design of a SCADA (Supervisory Control & Data Acquisition) Solution

The SCADA system includes signal hardware (input and output), controllers, networks, user interface (HMI), communications equipment and software.

Municipal Solid Waste Treatment Plant
Saida - Lebanon

Municipal Solid Waste Treatment Plant

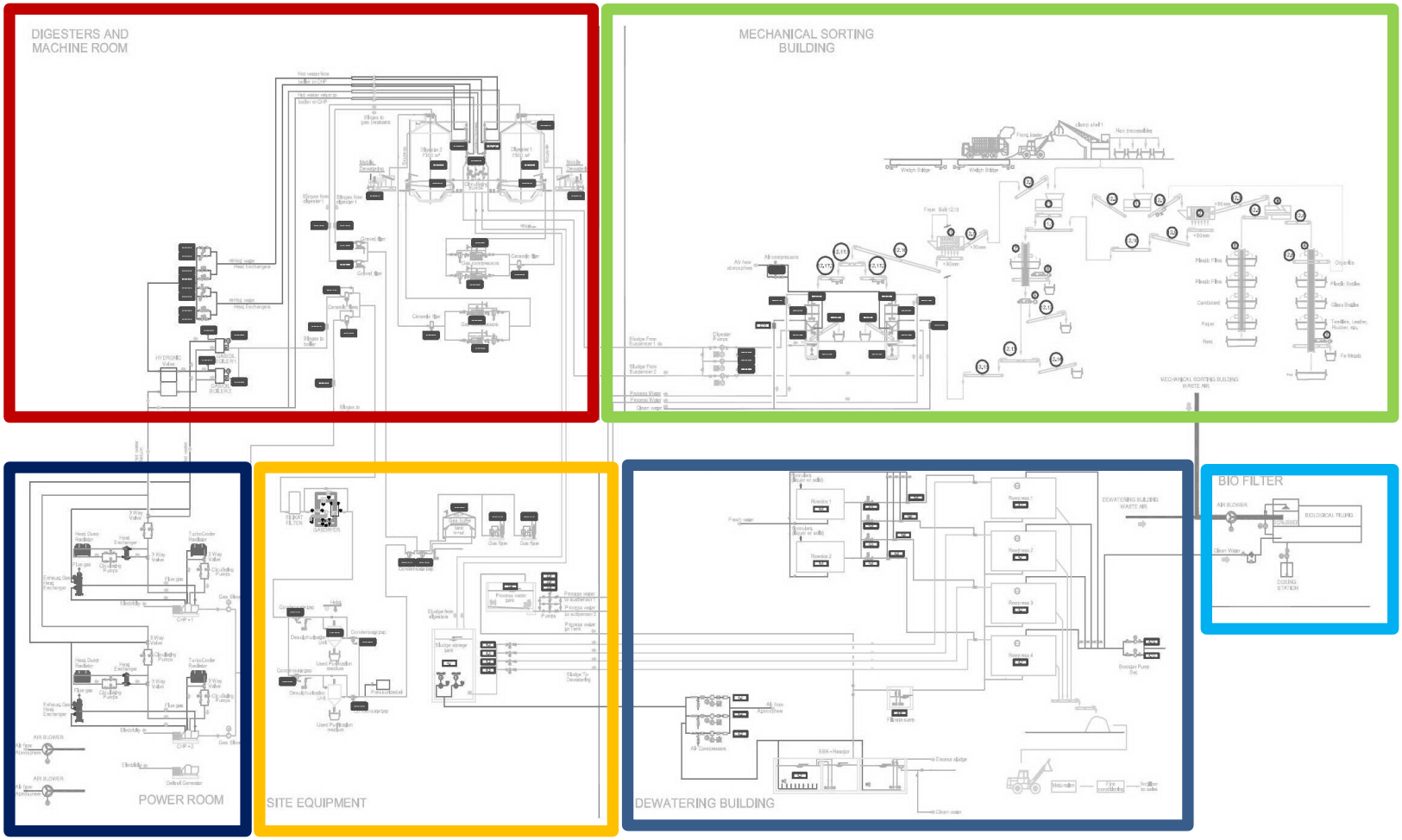
Saida - Lebanon

The Municipal Solid waste (MSW) treatment plant is the overall intention to design a suitable process technique and install the best available technique in order to maximize the valuable outputs as well as the minimization of environmental impacts.

The biological treatment, the organic rich fraction, is treated anaerobically. During this digestion process the organic substance is decomposed by means of microorganisms and opposed to an aerobic process biogas is produced, which can be used for the generation of heat and electricity (CHP).

Additionally, a comprehensive management of waste water and waste air is provided in order to reduce emissions from the plant as far as possible.

Process Single Line Diagram



Municipal Solid Waste Treatment Plant
Saida - Lebanon

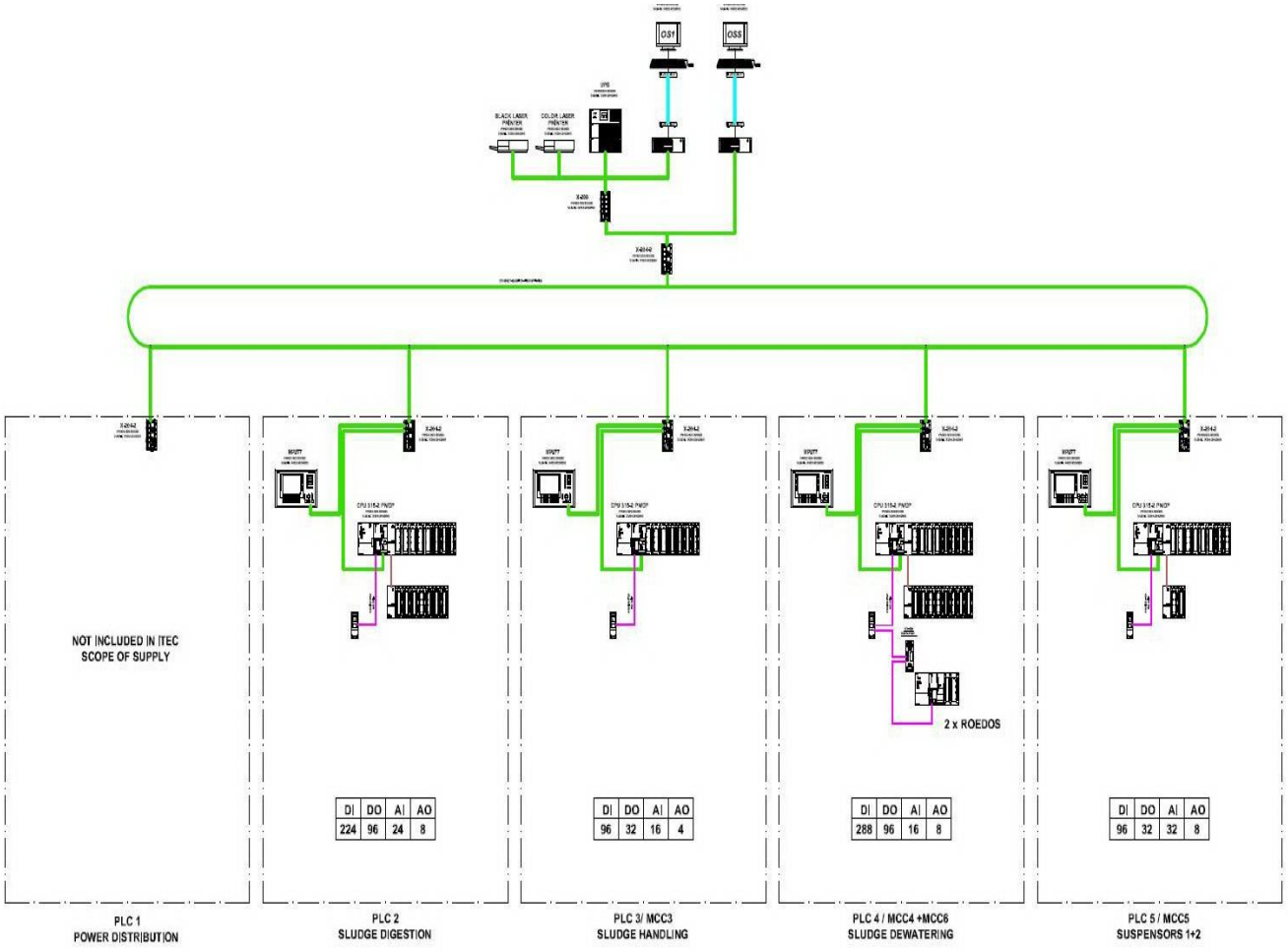
Municipal Solid Waste Treatment Plant
Saida - Lebanon

Communication PLC / SCADA using PROFINET

PROFINET IO is one of two open Ethernet standard automation "views" from Profibus International. While PROFINET IO focuses on Programmable Controller data exchange, PROFInet CBA (Component Based Automation) focuses on distributed automation systems. PROFINET CBA provides a DCOM-based system for organizing automation systems into networks of peer devices that can automatically exchange data using predefined relationships between the interfaces of the automation components. PROFINET CBA is thoroughly used in this application

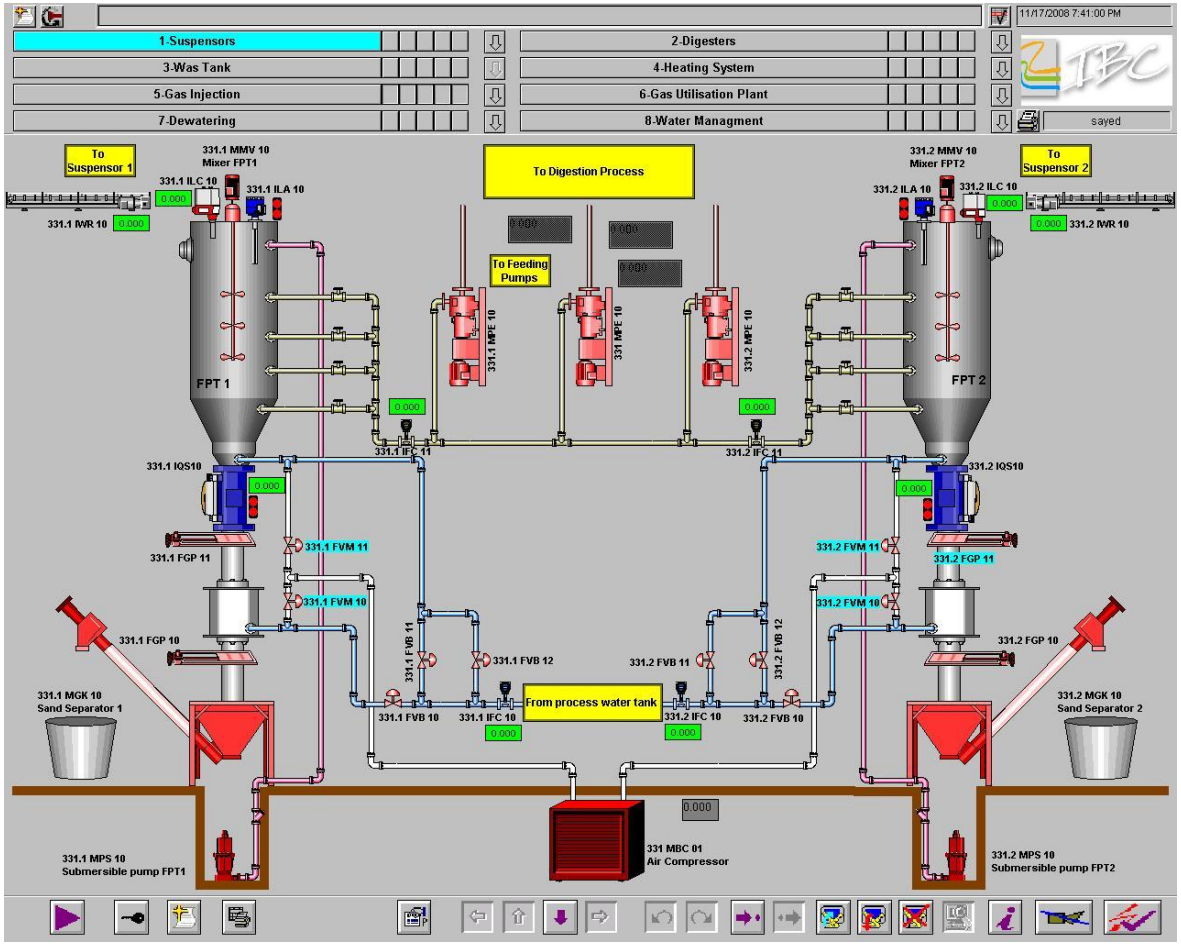
Communications between controllers (PLCs), and between PLCs and SCADA is done using the Industrial Ethernet Network, among PLCs is done using PROFINET I/O. Communications between controllers and the distributed I/O devices is done using Profibus.

Municipal Solid Waste Treatment Plant
Saida - Lebanon

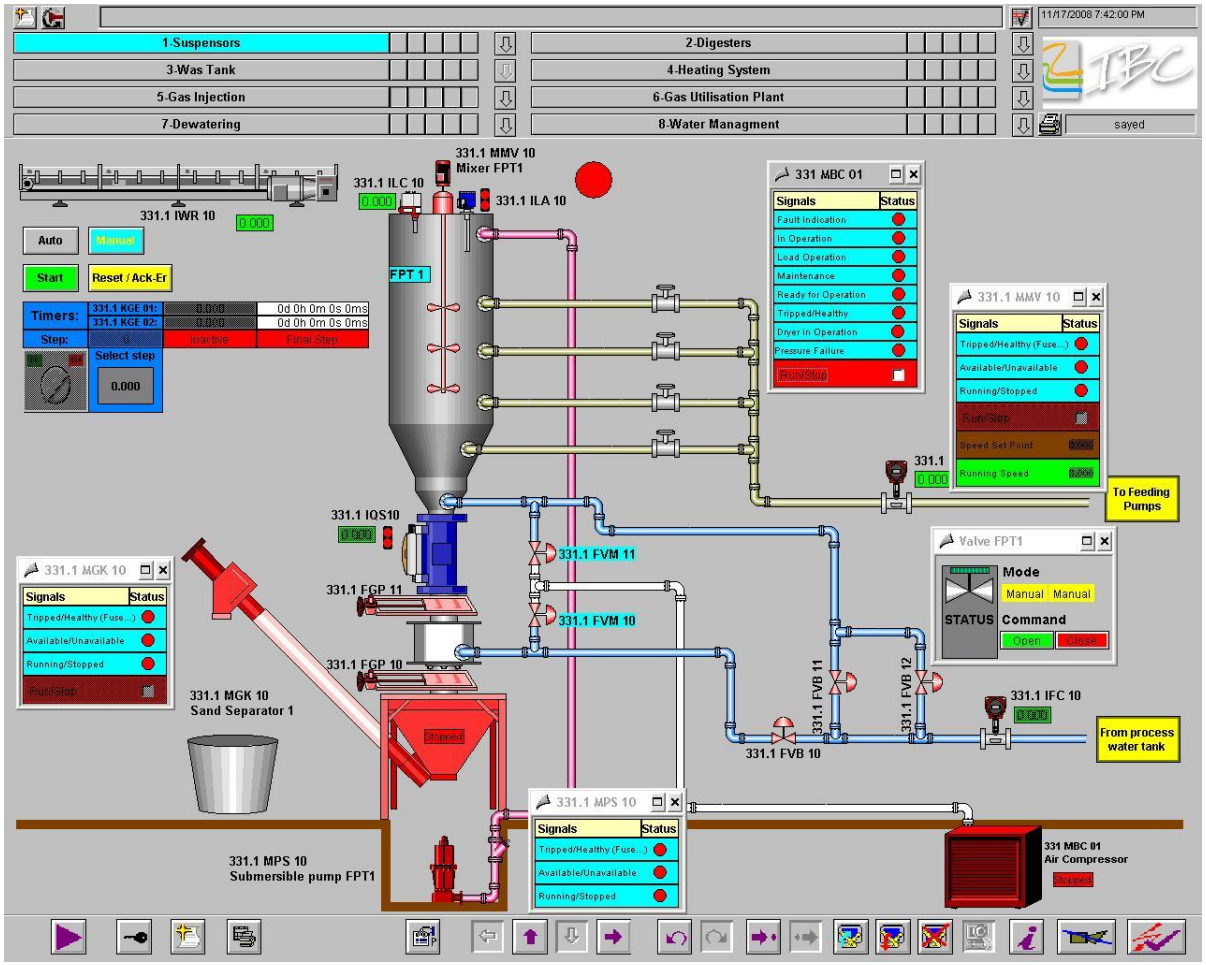


ELECTRICAL PANELS

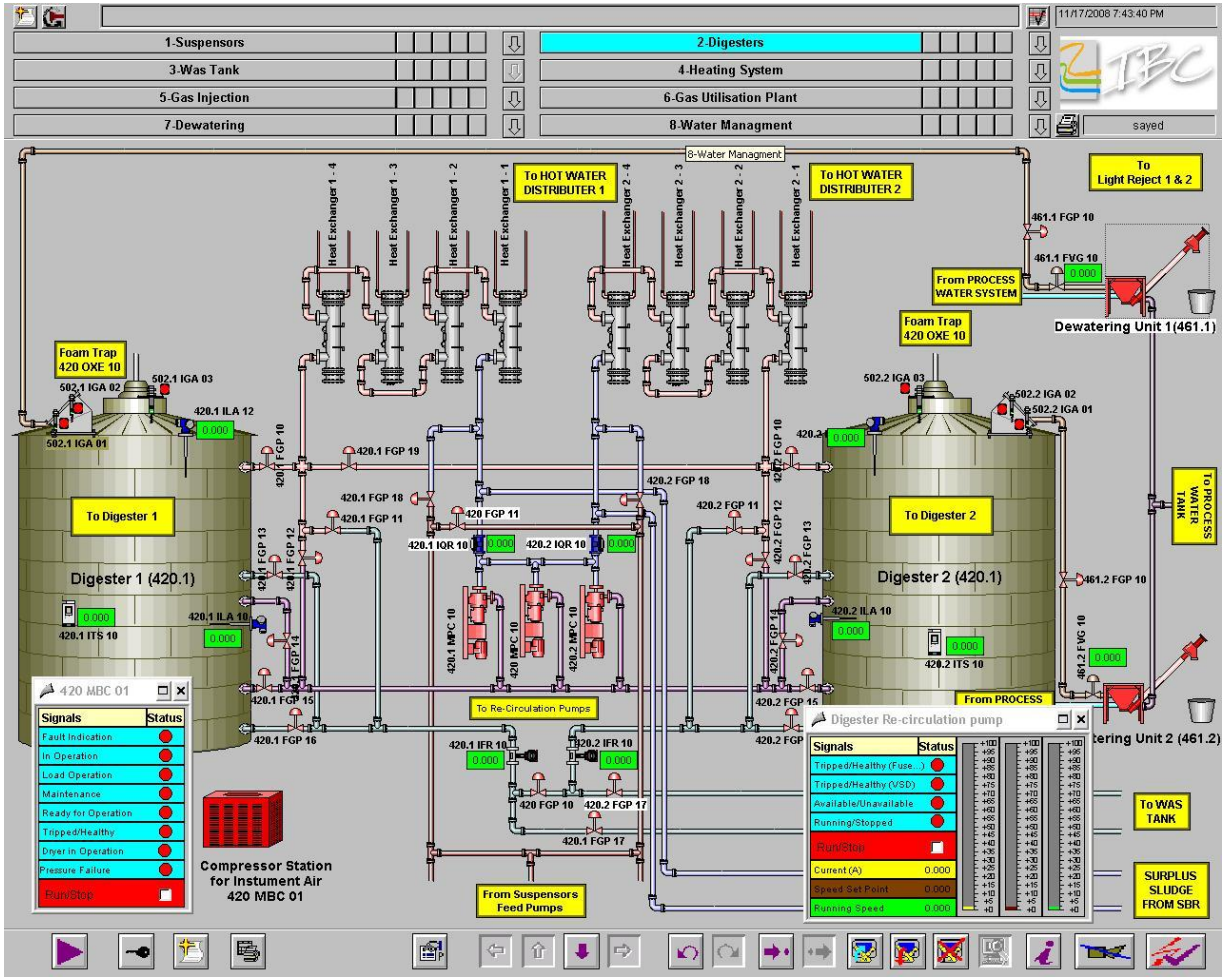
Municipal Solid Waste Treatment Plant
Saida - Lebanon

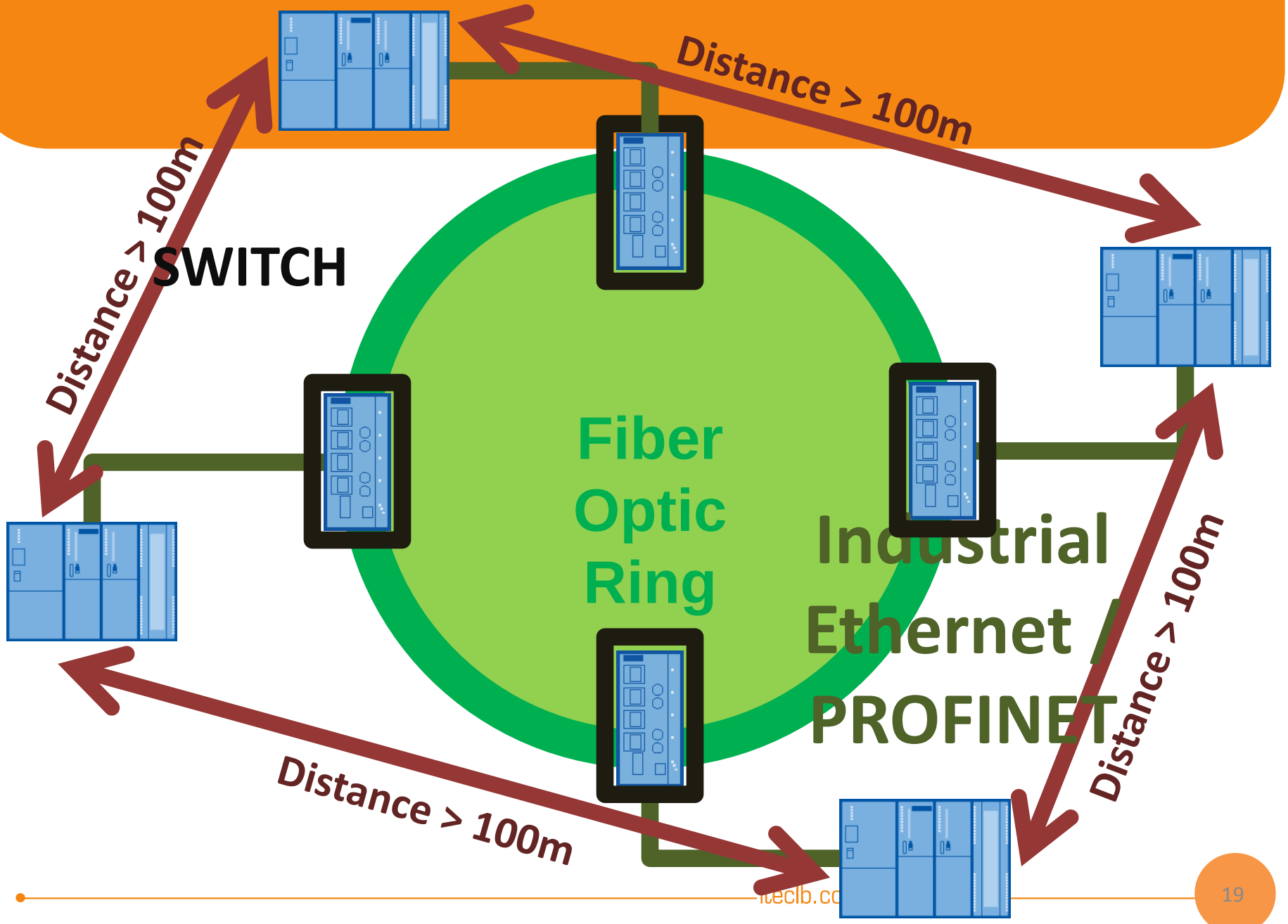


Municipal Solid Waste Treatment Plant
Saida - Lebanon

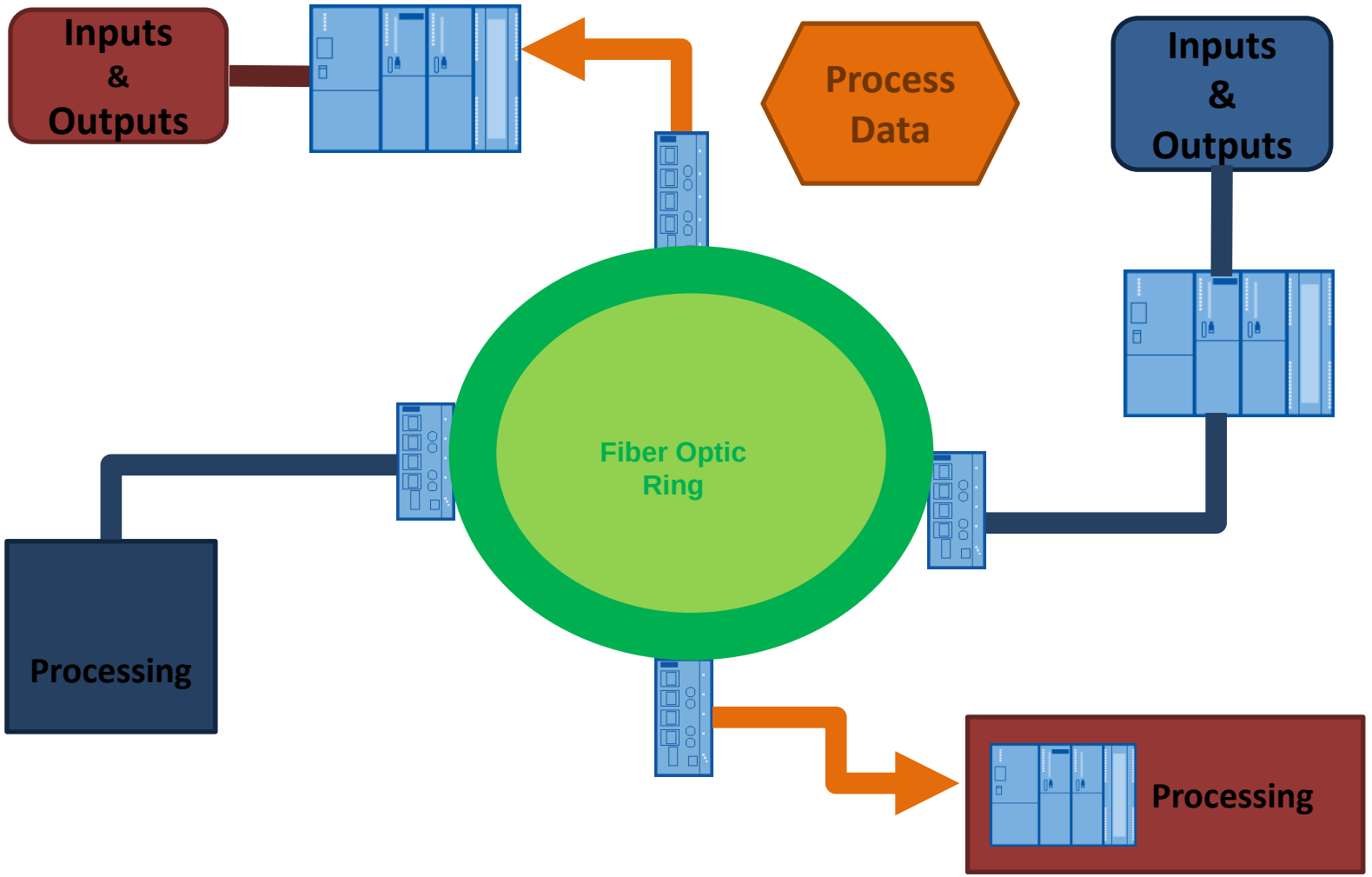


Municipal Solid Waste Treatment Plant
Saida - Lebanon




Distance > 100m
Distance > 100m
SWITCH
Fiber
Optic
Ring
Industrial
Ethernet /
PROFINET
Distance > 100m
Distance > 100m

Solid Waste Treatment Plaint
Data exchange

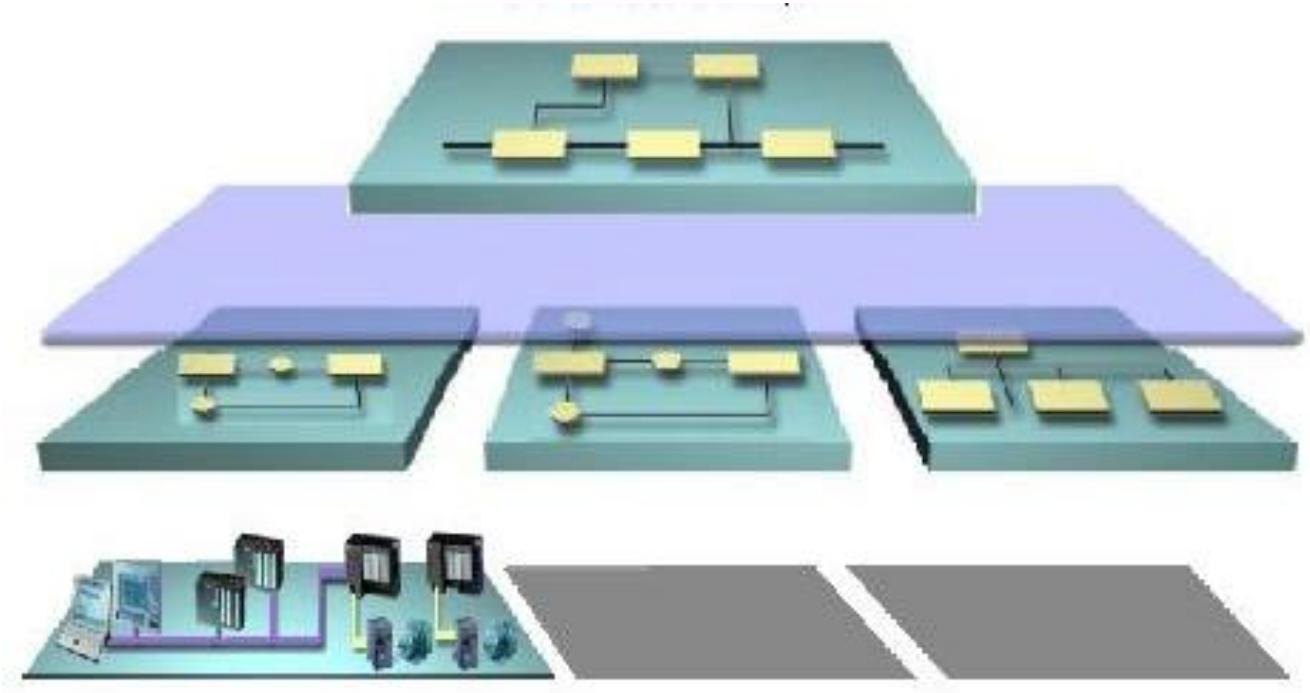


Solid Waste Treatment Plaint

Data exchange

Technology used:

PROFINET Component Based Automation (CBA)



Project Qatar Cement

Using PROFINET solutions will reduce complexity

Offering an integrated automation platform with ITEC. All the major components have standardized, open interfaces and are developed to suit the application. This also means that, ultimately, the release of the components and their compatibility and interoperability is tuned to each other. Users can automate their processes with this extensive,

PROFINET allows effective, long-term optimization of production, process, and plant procedures and keeps life-cycle costs under control.

Refurbishing a Full-Automatic Cement Blocks Plant in Qatar

Using PROFINET protocol, has led to reduce project complexity by offering:

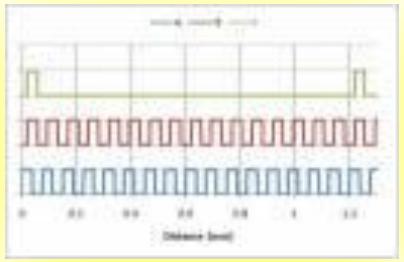
- High speed communication among controllers
- Diagnostics on the communication and field devices
- The ability to use wireless PROFINET devices, hence we are able to control complex moving parts such as ROBOTS, without worrying about the cabling solutions

Wireless network

ITEC used industrial wireless Ethernet for places where Mobile parts of the plant exists

POSITION CONTROL

BASIC POSITION CONTROL

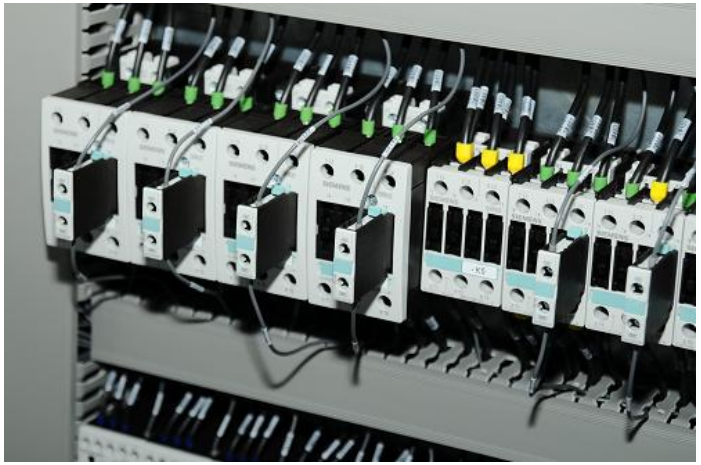


SIGNAL ANALYSIS → POSITION FEEDBACK

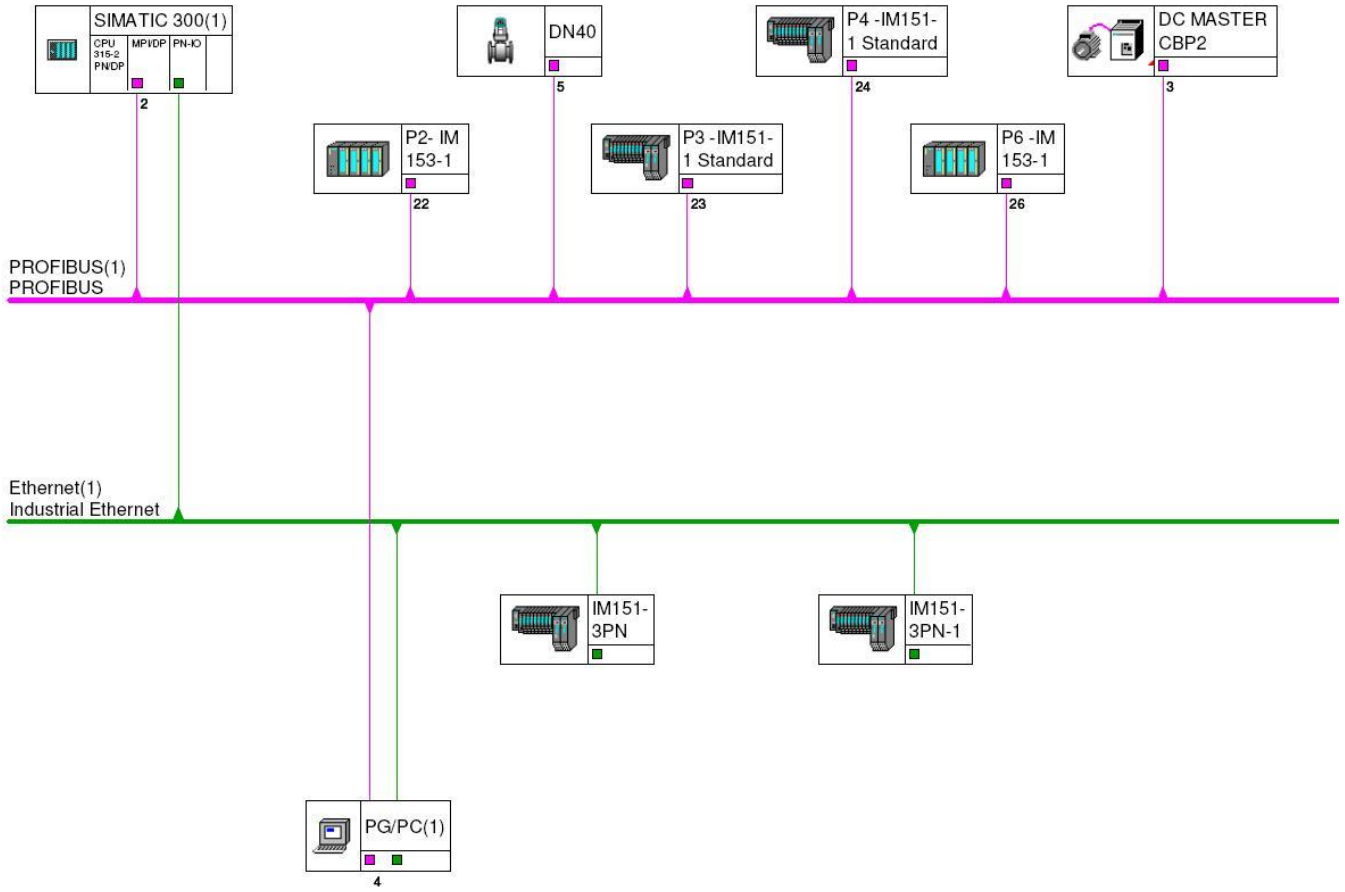
Refurbishing a Full-Automatic Cement Blocks Plant in Qatar

The complete plant was treated as a single production line

Refurbishing a Full-Automatic Cement Blocks Plant in Qatar



3. NETWORK TOPOLOGY



Zaarour –Mount Lebanon – Skiing resort.

Location

Lift Station – skiing resort

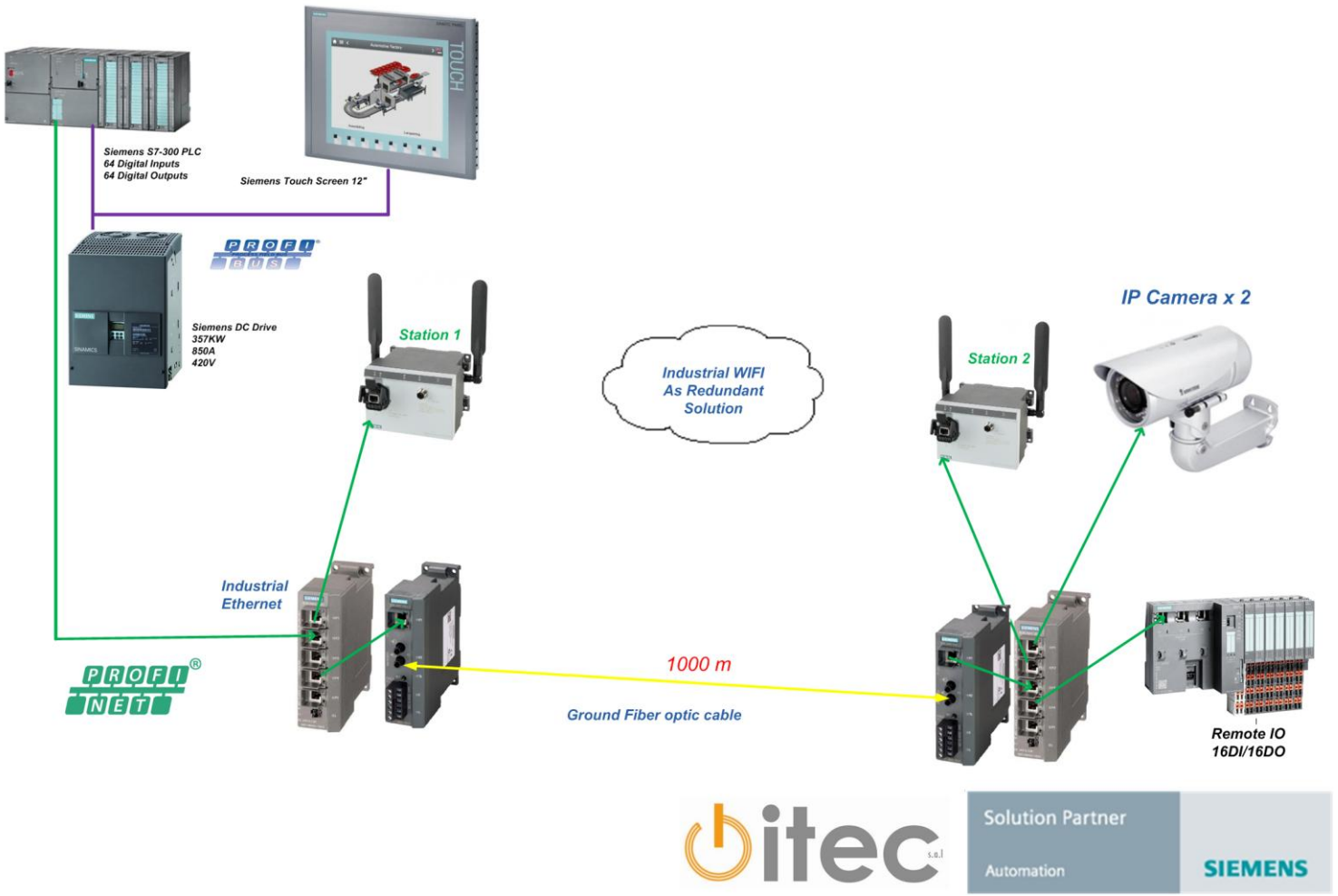
The project consists of refurbishing an old chairlift system to include the newest automation technology, the project consists of two stations, departure and arrival .

The challenge was transmitting the electrical signals from station 2 to station 1 , distant 1.2 KM . here came the use of PROFINET over fiber optic network due to long distance between the stations . due to PROFINET, we could transmit not only IO signals, also we have installed 2 IP cameras at arrival stations, so the operators can monitor the Skiers there, and check if the system is working error free.

Using one protocol , we could use PROFINET to transmit IO signals and media, such as camera signal, internet, voice … . in case of damage of the fiber optic cable or any of the media converters, user can switch to IWLAN (industrial wireless LAN) , which is also supported by PROFINET, thus the same features could be applied.

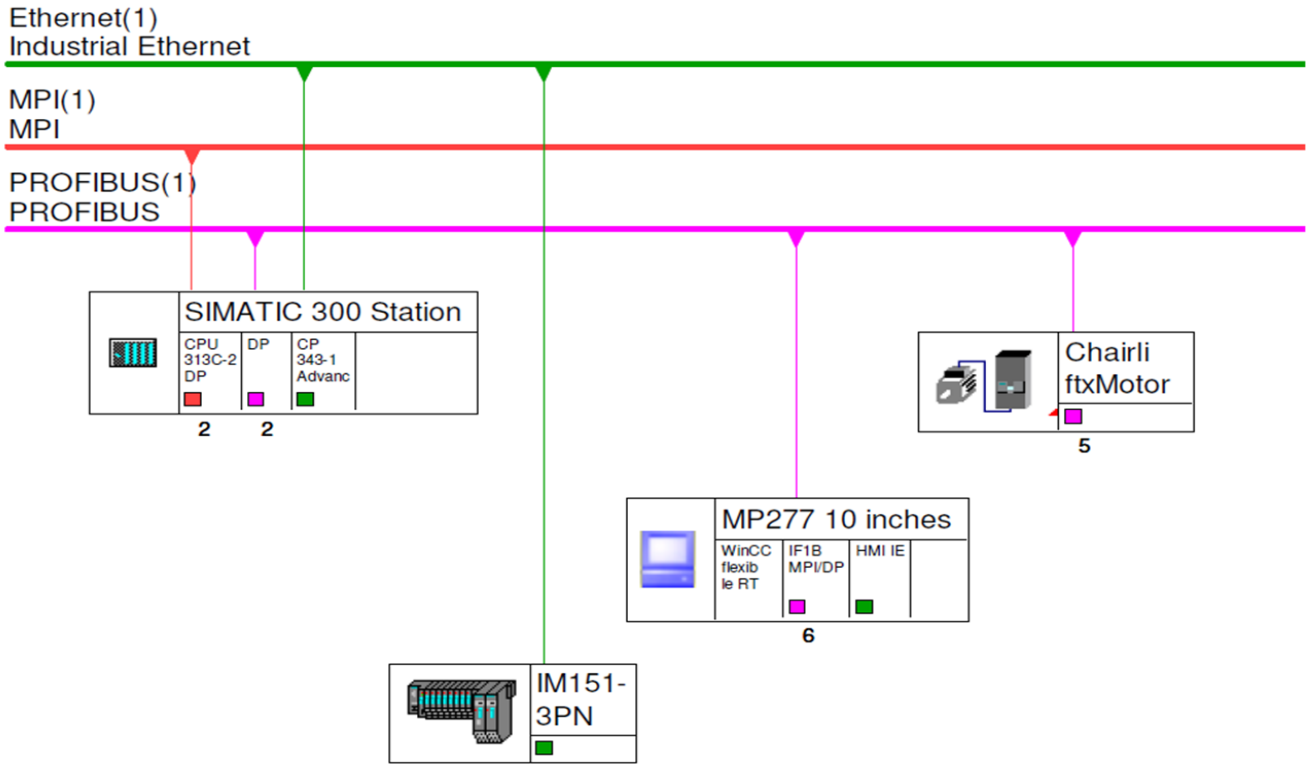
Routing from PROFIBUS to PROFINET and Vice VERSA is always possible too!

Lift Station – skiing resort



Lift Station – skiing resort

Step7 - Netpro

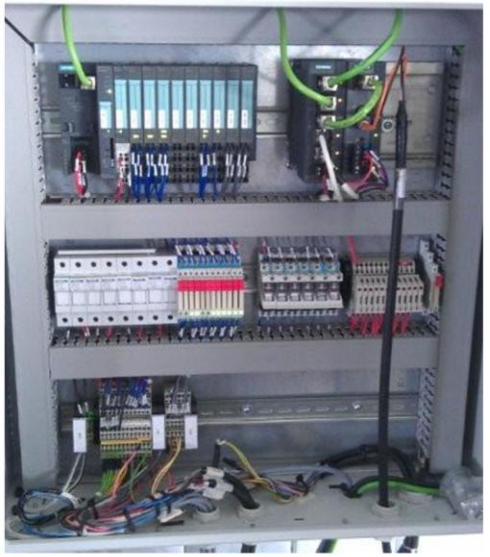


Lift Station – skiing resort

Main Cabinet

Communication Cabinet

Remote Cabinet



IP Cam @ Station 2

Any Questions?

From ITEC Team we would like to thank you for your interest and listening.

Hoping this Presentation will Form a solid Business Relationship.

Best regards,

ITEC - Industrial Technologies