

Petrolimex Information Technology
and Telecommunication JSC.

PIACOM

PIACOM TAS

Terminal Operation Solutions



Efficiency

*Large operating costs
reduce efficiency?*



Accuracy

*Unable to manage the amount of
fuel, causing great loss?*

*Unguaranteed quality of goods,
causing loss of reputation?*

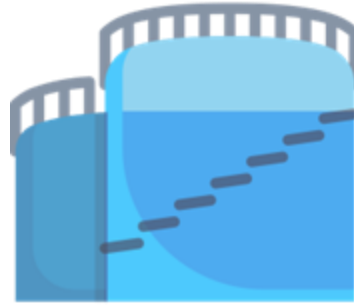


Safety

*Risk of fire and explosion causing
unsafety to the terminal (Tank
overflowing, truck loading spilling)?*



**Top concerns when operating
a terminal (warehouse)**



Your terminal needs
an Operation Solution

Safe – **Accurate** – **Effecient**

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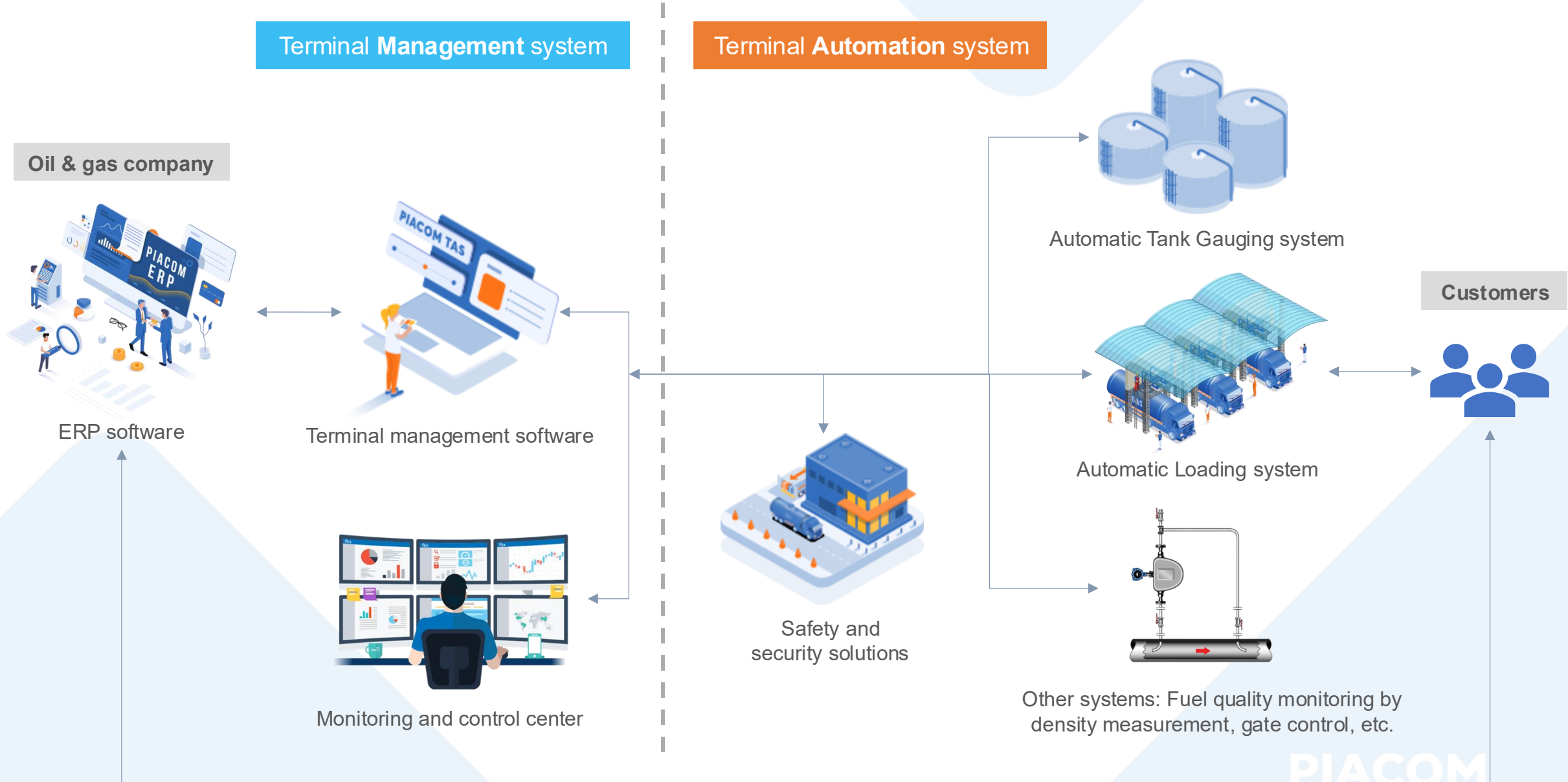
Terminal Operation Management Solution

PIACOM TAS provide automatic operation management solution, replacing manual processes at oil & gas terminal (warehouse) from unloading, storage, to loading.

Based on the modern technology of leading automation corporations in the world, **PIACOM TAS** visualizes and helps you operate you oil & gas terminal (warehouse) **safely** – **accurately** – **efficiently**.



Technology solutions for all operations at oil & gas terminal



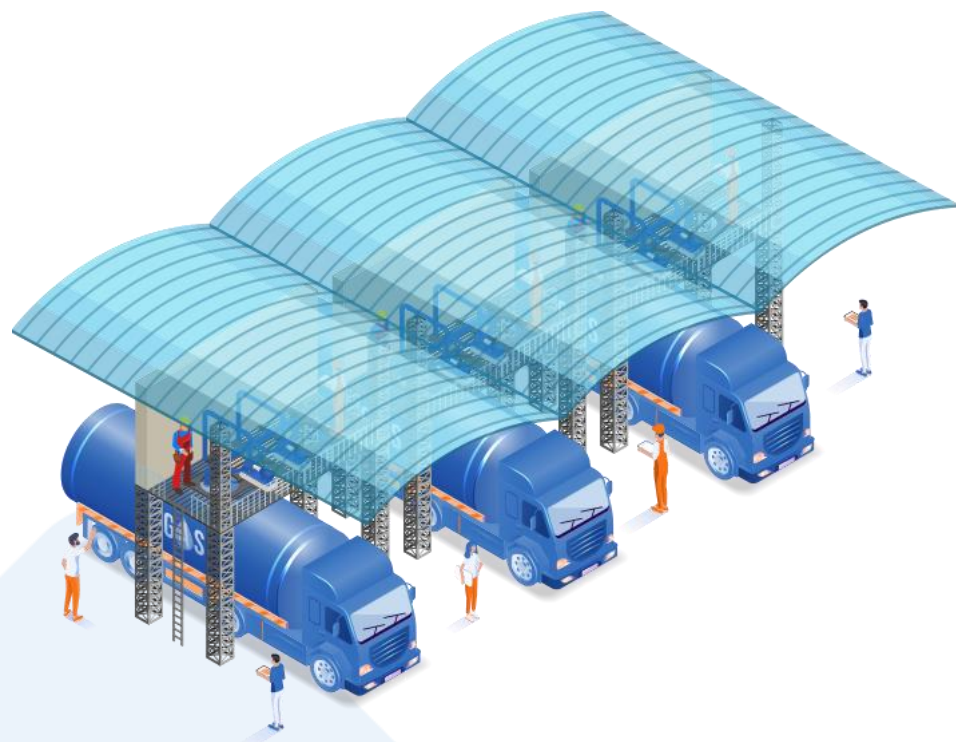
Terminal Automation system



1

Automatic loading system (land or water transport)

Using Batch controller technology, automatically loading fuel according to a preset quantity for tank trucks, tankers and wagons.



Control pump and valve, ensure accurate loading output based on a preset quantity.



Control safety conditions during loading: ground wire, overflow alarm, breakdown stop, emergency stop.



Automatic blending of bio-alcohol and mineral fuel directly on the pipeline.



Visually monitor all parameters of loading process on the SCADA screen.



Simple loading process via magnetic card or loading order.

Benefits of Automatic loading system



Automatic Tank Gauging system

Using high-precision **Radar or Magnetostrictive** level measurement technology, automatically measuring levels of vertical tanks at terminal (warehouse)



Real-time measurement of fuel level in tanks



Visually monitor tank measurement on the SCADA screen.

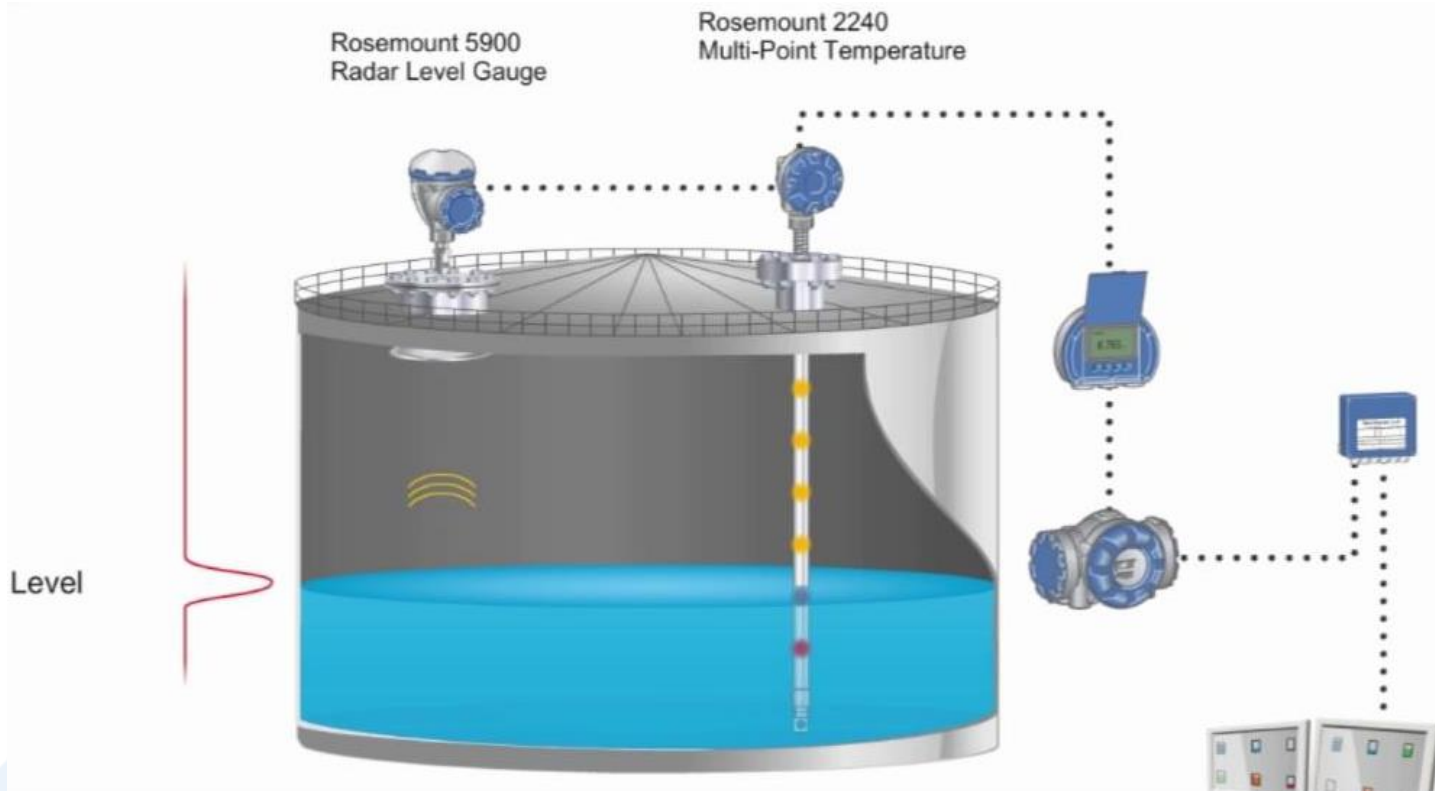


Provide detailed reports on the status of fuel inventory for management purposes.



Automatic Tank Gauging system

► RADAR TECHNOLOGY



Specifications

Radar non-contact measurement

Level accuracy : **-/+0.5mm**

Temperature accuracy: **-/+0.1°C**

Max measurement height: **40 m**

Measure

Caculate (API Standard)

Fuel level	Volume (litter, litter 15)
Water level	Weight (kg)
Temperature	Flow rate (Q)
	Warning

Automatic Tank Gauging system

MAGNETOSTRICTIVE TECHNOLOGY



Specifications

Magnetostriuctive contact measurement

Level accuracy: **-/+2mm**

Temperature accuracy: **-/+0.5°C**

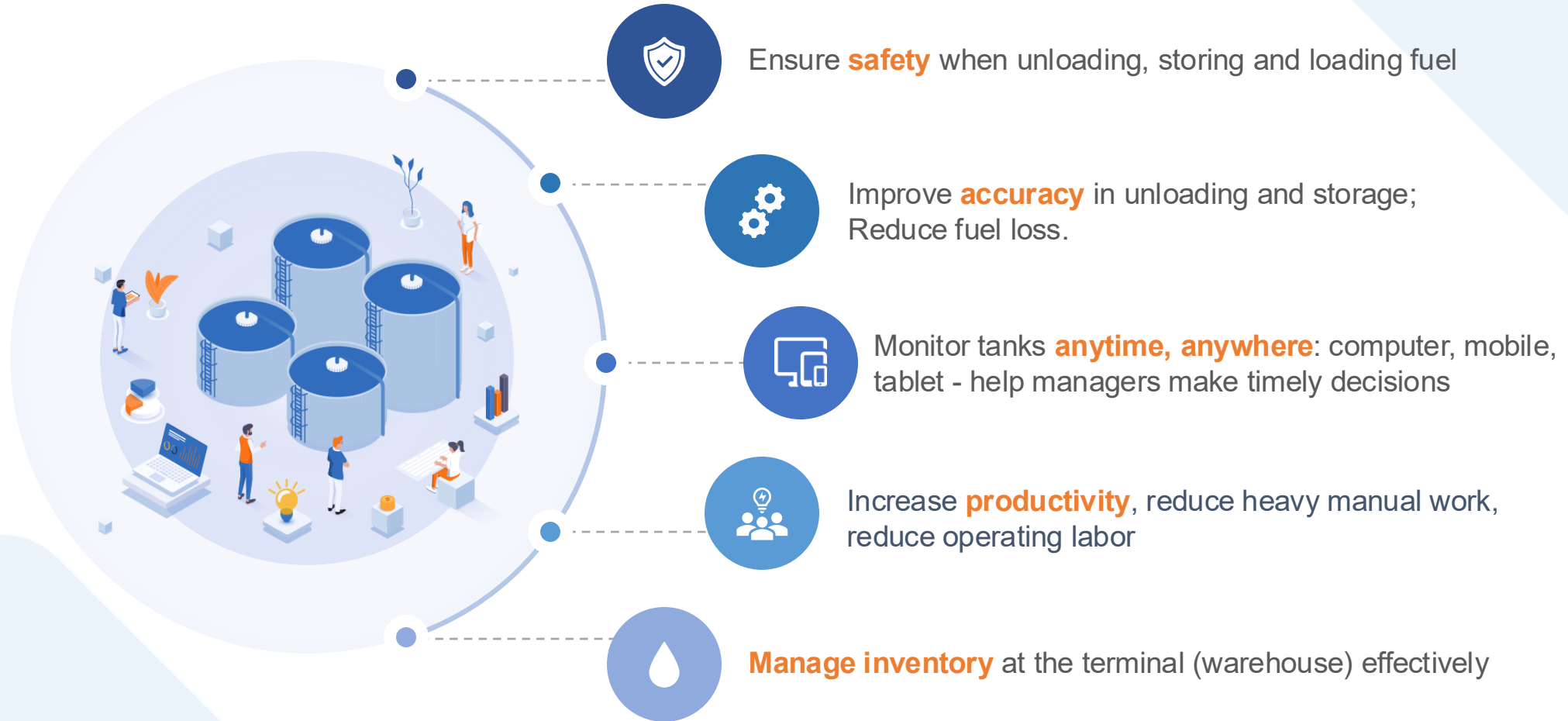
Max measurement height: **22 m**

Measure

Caculate (API Standard)

Fuel level	Volume (litter, litter 15)
Water level	Weight (kg)
Temperature	Flow rate (Q)
	Warning

Benefits of Automatic Tank Gauging system



3

Fuel quality monitoring System

Using high-precision density measurement technology, automatically and continuously measuring the density on the input/output pipeline



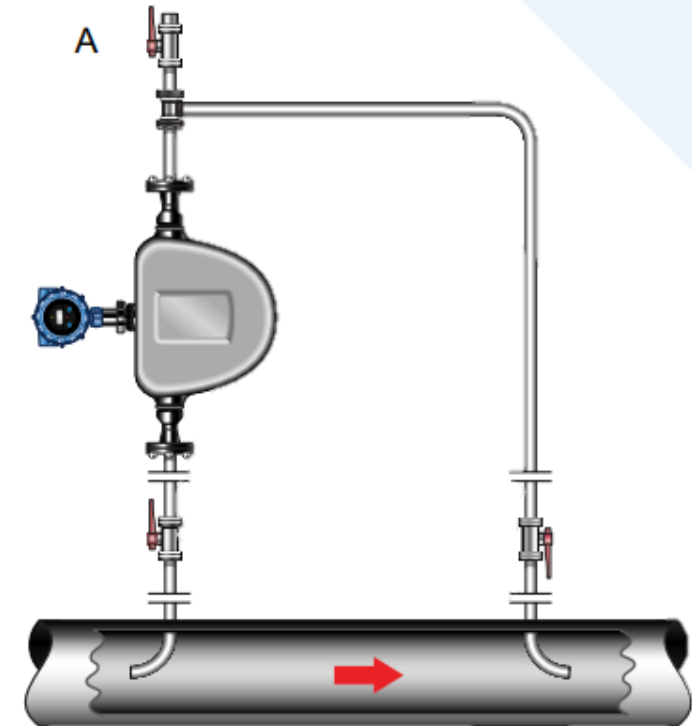
Real-time density measurement on input/output pipeline



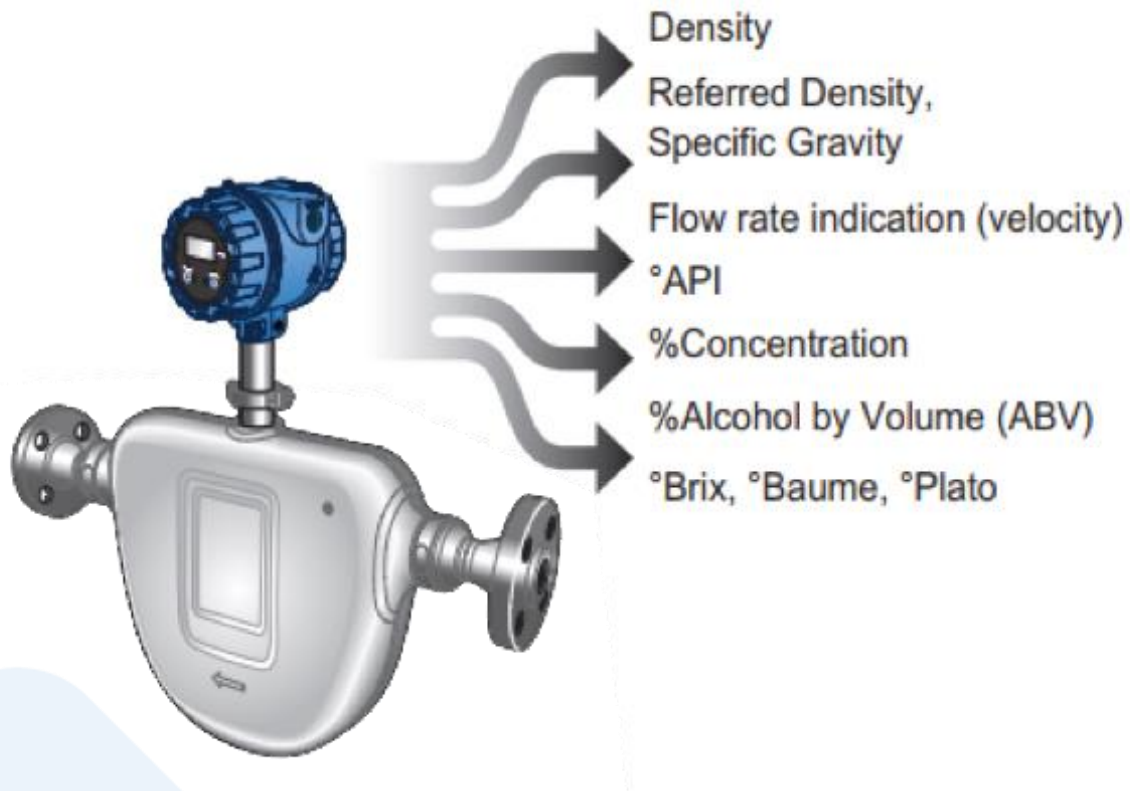
Visually monitor density data; warn and automatically sampling when the density is abnormal (due to mixing or layering...)



Provide detailed reports on the density of loading and unloading fuel



Fuel quality monitoring System



Specifications

Measuring according to

Coriolis principle

Accuracy: $\pm 0,2 \text{ kg/m}^3$

Measure

Density • Flow rate • Temperature

Benefits of Fuel quality monitoring System



Terminal Management system



Monitoring and control center

The heart of all technology and automation system at oil terminal

Monitoring goods

Integrate with management information system, support fuel monitoring; Synchronously connect with Sales department to provide customers with seamless process of getting fuel.

Monitoring operation

Continuously monitor the operation process at oil terminal (warehouse) to timely handles with warnings and incidents.

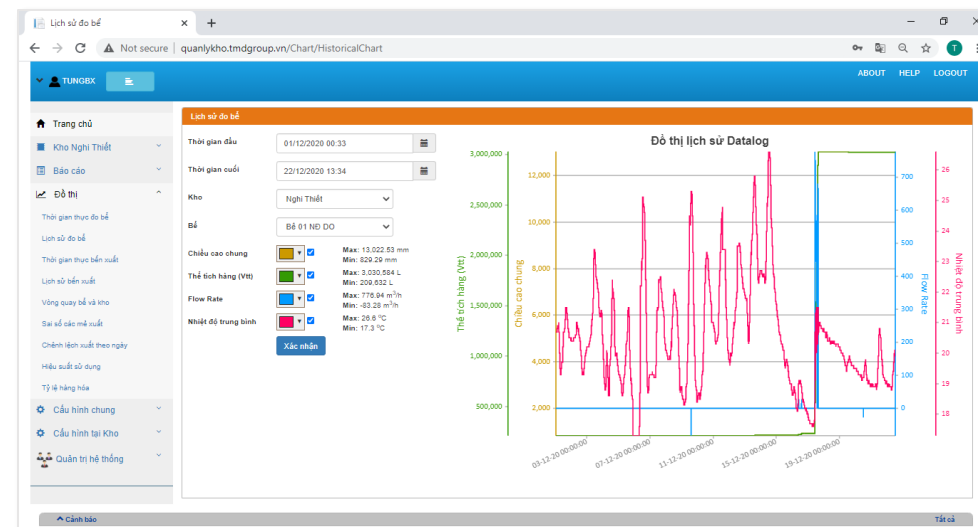
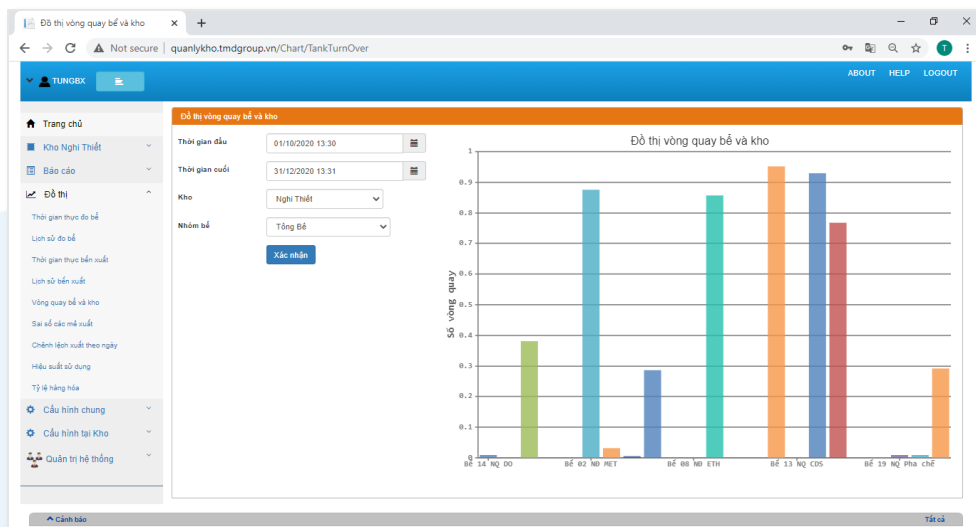
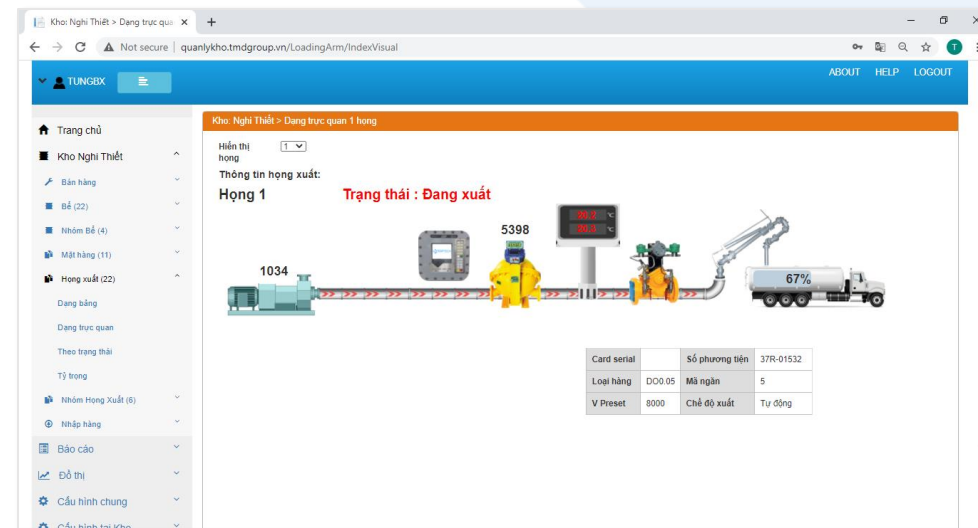
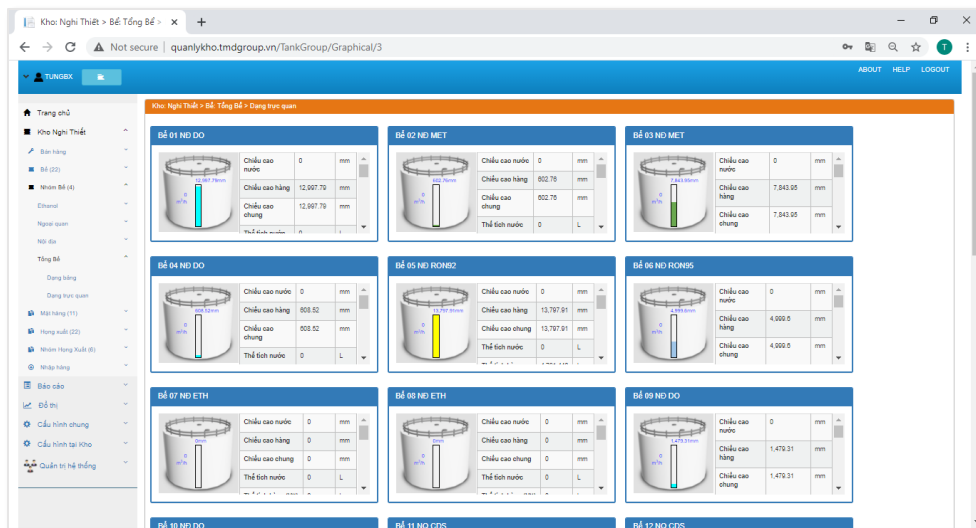


Terminal Management software



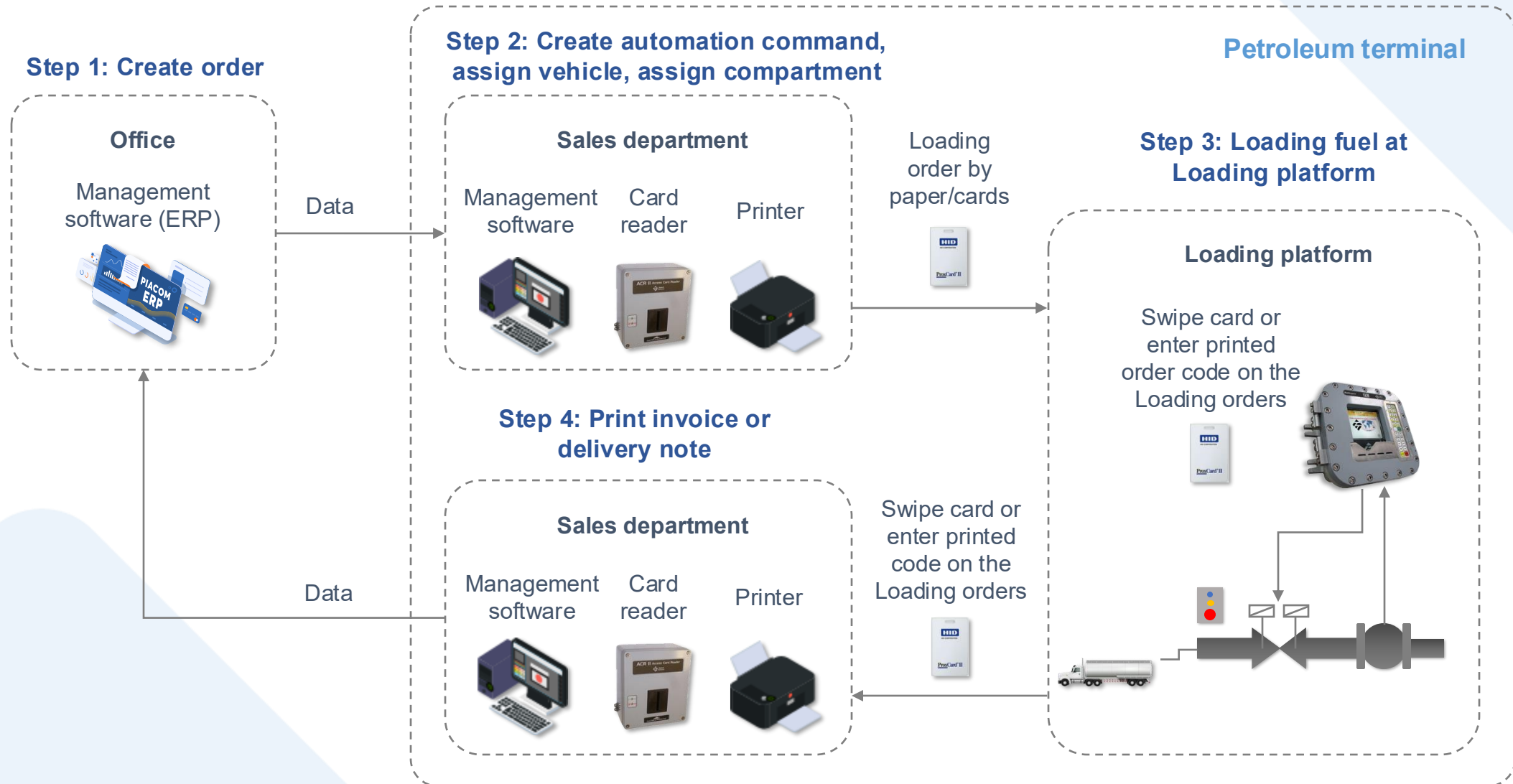
Example of Terminal Management software

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Demo of Loading process

▶ A typical fuel loading process, with strict operation steps



2 Demo Terminal Management software



Our customers

PIACOM



PETROLIMEX

40+ terminals
(warehouse)



20+ terminals
(warehouse)

Case study

▶ PIACOM TAS at Hải Linh's oil terminals

Hải Linh's oil terminals

Belongs to Hai Linh Co., Ltd



- Hai Linh is the largest private oil and gas company in Vietnam
- **Scale:** 6 terminals (warehouses) in total
- **Capacity** of each terminals (warehouses) : 50,000 - 100,000 m³



Case study

▶ PIACOM TAS at Hải Linh's oil terminals

Before PIACOM TAS

Loading

Controlling vehicles, goods, loading at the entrance, at the platform were done manually, with hardcopy documents.

=> **Easy to make mistakes**

At the loading platform, each pump required one worker, shutting off the valve was done by hand.

=> **Expensive labor cost; over-loaded fuel causing great loss, there once was an over-flow error**

Tank gauging

Measuring had to be done before unloading; During unloading process, measuring must be performed periodically to timely move to another tank when almost full; After unloading complete, measuring was needed one more time right after the fuel was stable in tanks

=> **Inaccurate measuring data; forgetting to change the tank causing unsafe over-flow**



After PIACOM TAS

The loading process is strictly controlled, must follow step by step of the process

=> **Control goods, avoid fuel loss**

Reduce labor at the loading platform, drivers can operate by themselves to get the goods

=> **Reduce labor cost**

Ensure safety and accuracy when unloading and loading fuel

=> **Avoid unsafe over-flow**

Managers can monitor the inventory of all 6 terminals (warehouses), balance the quantity of fuel among the farms, make decisions and adjust price policy in time.

=> **Improve business efficiency**

Improve transparency and trust, leading to increase of customers

=> **Increase production and revenue**

Case study

▶ PIACOM TAS at Hải Linh's oil terminals

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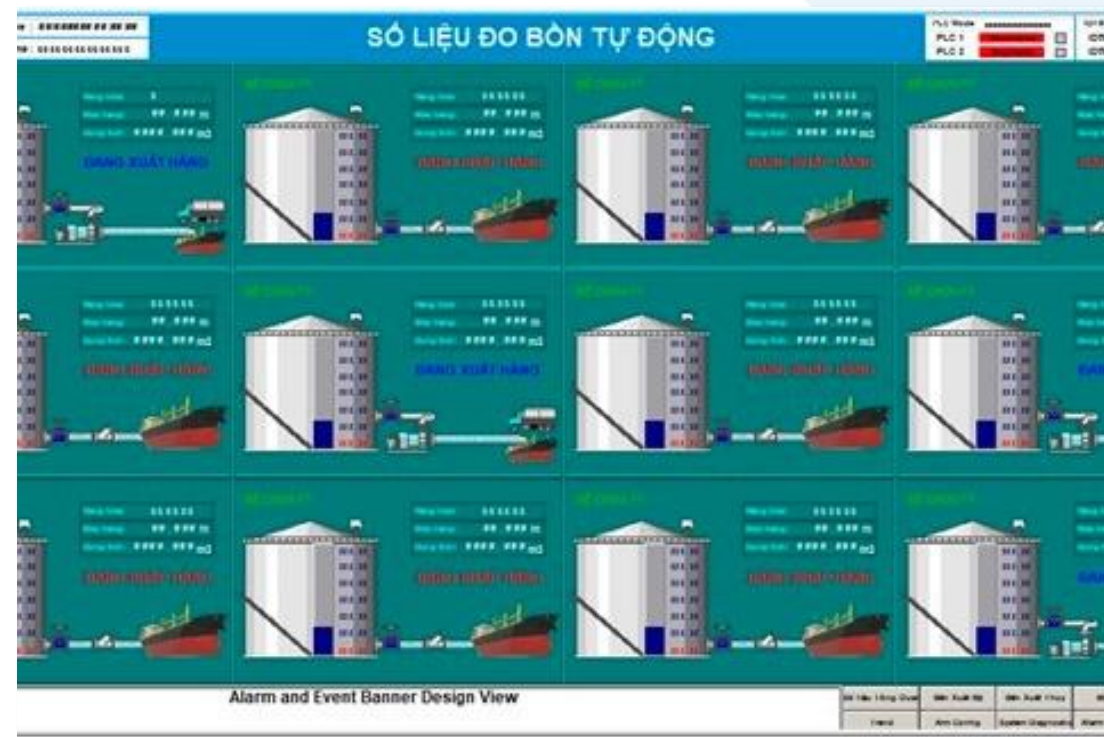


Automatic Truck Loading system

Case study

PIACOM

▶ PIACOM TAS at Hải Linh's oil terminals

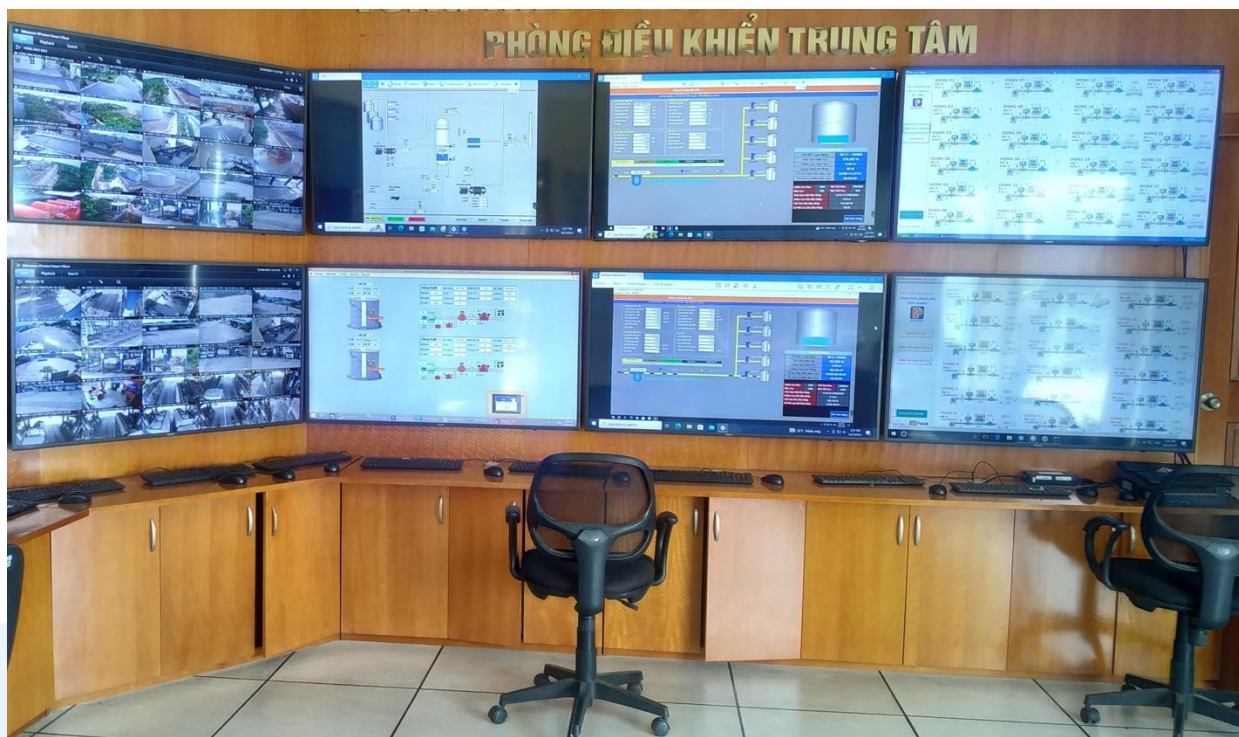


Automatic Tank Gauging system

Case study

PIACOM

▶ PIACOM TAS at Hải Linh's oil terminals



Monitoring and control center

The background is a deep blue gradient with a network of thin, light blue lines connecting small dots, creating a geometric, low-poly effect. The dots are scattered across the frame, some appearing as small white specks and others as slightly larger, faint blue or purple dots. The overall aesthetic is modern and digital.

Q&A

Thank you