GAUSSIN MANUTENTION

PAS

Creator of global handling solutions.Manufacturer of handling self-propelled systems

4TH BLACK SEA PORTS & SHIPPING 2015

ISTANBUL MARRIOTT HOTEL ASIA, ISTANBUL, TURKEY
THURSDAY 28 AND FRIDAY 29 MAY 2015

Container Terminal Automated Horizontal Transportation

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International Business Developer

No industry would today handle a large amount of unitised cargo without automation. The automotive industry has used it for decades and so has:

- The food and beverage industries
- Paper and pulp industries
- Steel industries
- Logistic centers
- Airports for their baggage handling
- Seaports for stacking containers

So why isn't automation more frequently used for the transportation between the quay and the stack, also called the "Automated Horizontal Transportation"?

Even though the question is rather simple, the answer is not as easy. There are several factors that need to be considered, such as:

- CAPEX
- OPEX
- Productivity
- Implementation risks.

This presentation will compare existing AGV systems with new technological developments.

Hatch covers and other handling equipment are mixed with the AGVs

Automated stacking cranes

Sequencing is performed before departure

A mix of Diesel/Hydraulic & Diesel/Electric "piggy back" AGVs

All container handling is performed within the STS legs

Hatch covers and other cargo handling equipment are handled within the STS legs

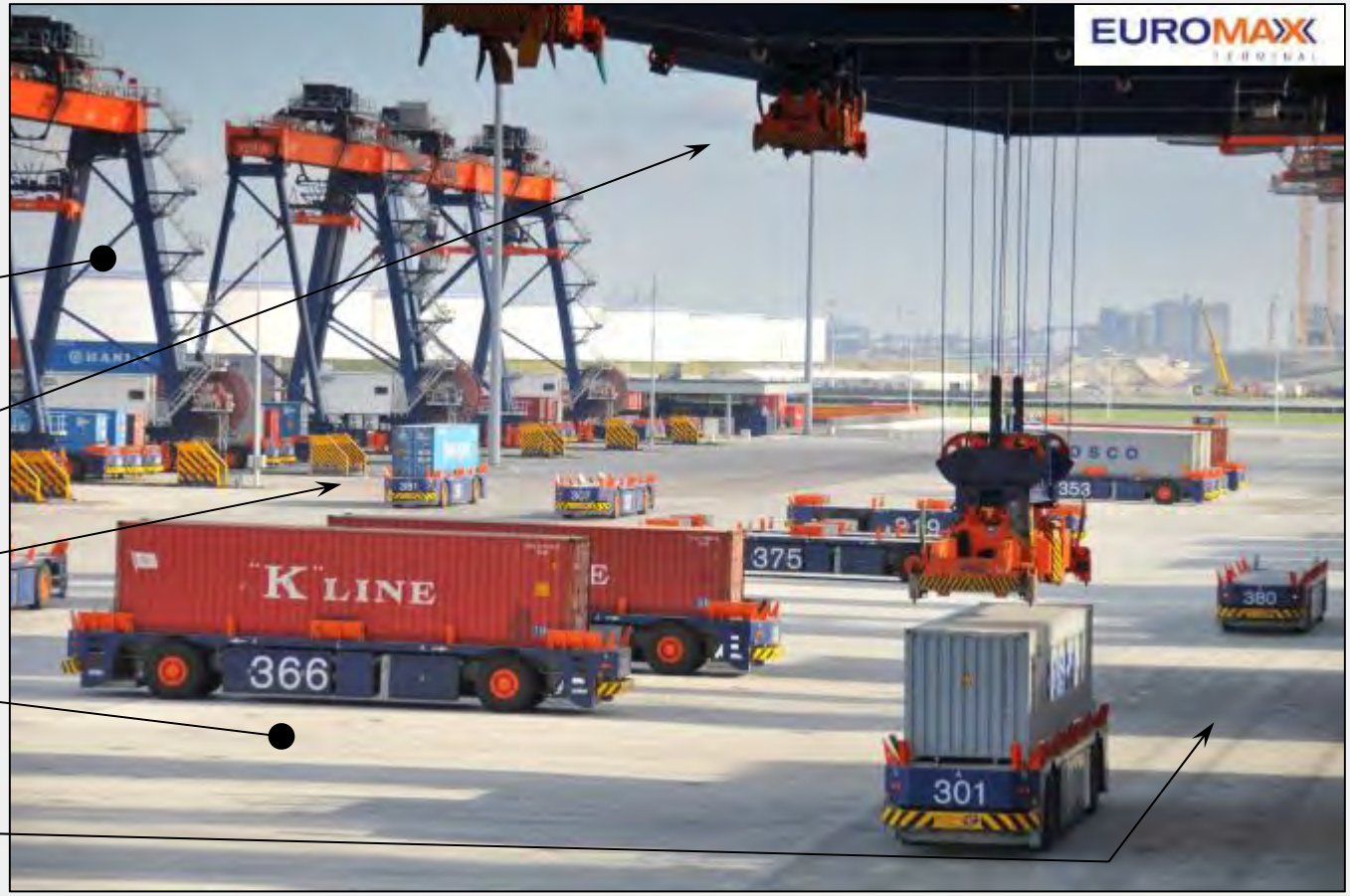
Automated stacking cranes

STS equipped with an automated 2nd trolley

Diesel/Electric "piggy back" AGVs

AGV holding lanes for sequencing

All container handling is performed at the STS back-reach



Decoupling at ASC

Traditional layout

- The AGV is waiting for the ASC to be loaded/unloaded
- A ”handshake” between the ASC and the AGV is required

Decoupled layout

- Steel racks are used for placing the containers
- A lifting mechanism on top of the AGV is handling the loading/unloading of the containers on the steel racks
- The AGV is no longer waiting for the ASC to be loaded/unloaded
- Less no. of AGVs are needed due to reduced waiting time at the ASC

1880 – Eugène GAUSSIN - Metal constructions

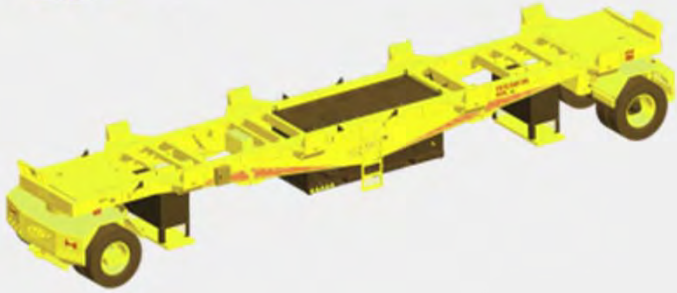
1961 – Henri GAUSSIN - Industrial trailers

1970 – Beginning of the containerization

1994 – AIRBUS (FULL ELEC vehicle)

ALGAU LISTED NYSE ALTERNEXT

2006 – IPO Listed on the Nyse Alternext

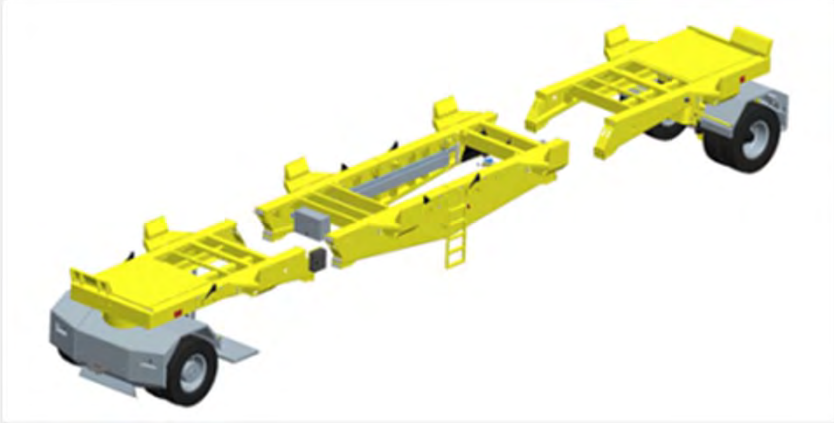


Modular design

3 section frame design

Axels and drives

Bolted fittings




LIFT
ATT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Automotive Intelligent Vehicle®
By GAUSSIN

The Power of your dreams...

POWER PACK
GAUSSIN

You just have one vehicle, but would like to change energy source?

No problem, choose the one you need, they are all interchangeable!

Within 5 minutes, you have a new vehicle!

Hybrid Diesel/Electric

Full electric Battery

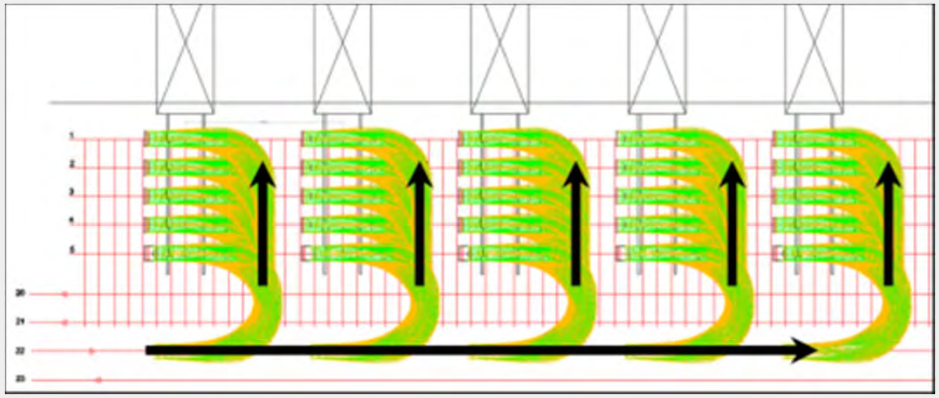
Future energy Full cell-hydrogen

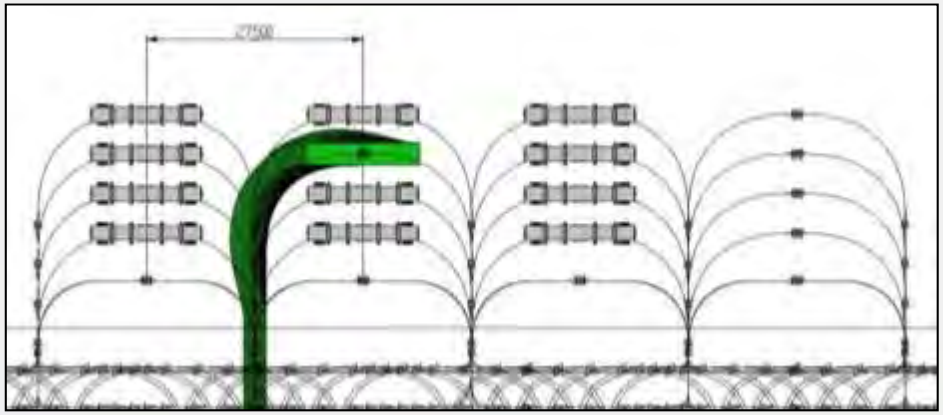
Under development

The increased manoeuvrability of the AIV

New layout with buffering under the QC

Due to the increased manoeuvrability, an AIV can access any transfer point under any QC without any limitation or interference even though the QC are placed “Shoulder to Shoulder”!





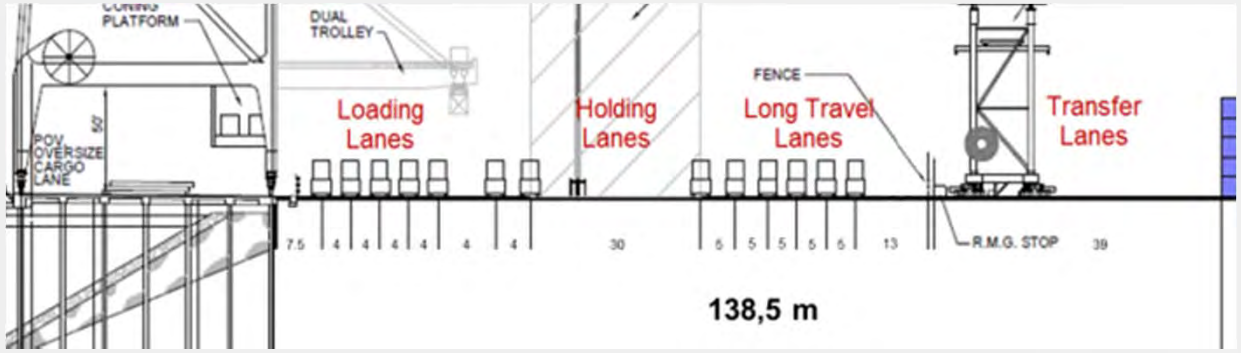
Sequencing in the buffers

The sequencing of containers performed within buffer under the QC

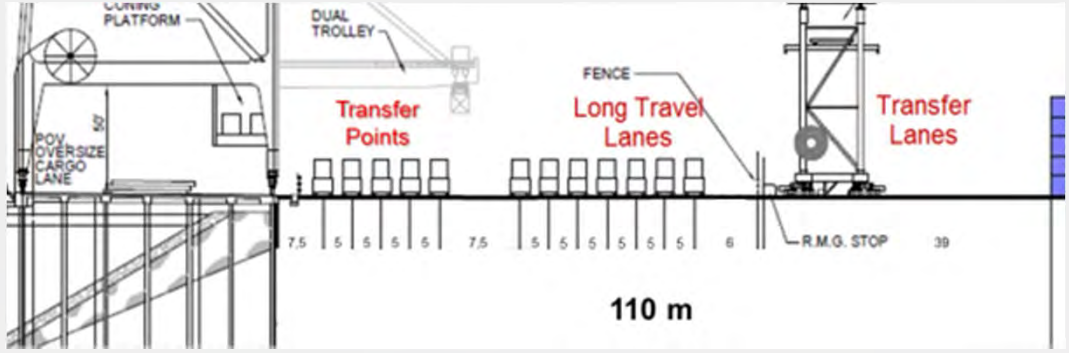
Since the holding lanes are not used anymore, the AIV operating area can be reduced with approx. 20%.

The increased lane width is used to safety enter/exit the transfer points when the QC are place "shoulder to shoulder".

Traditional AGV layout



New AIV layout



The total saving is 28,5m

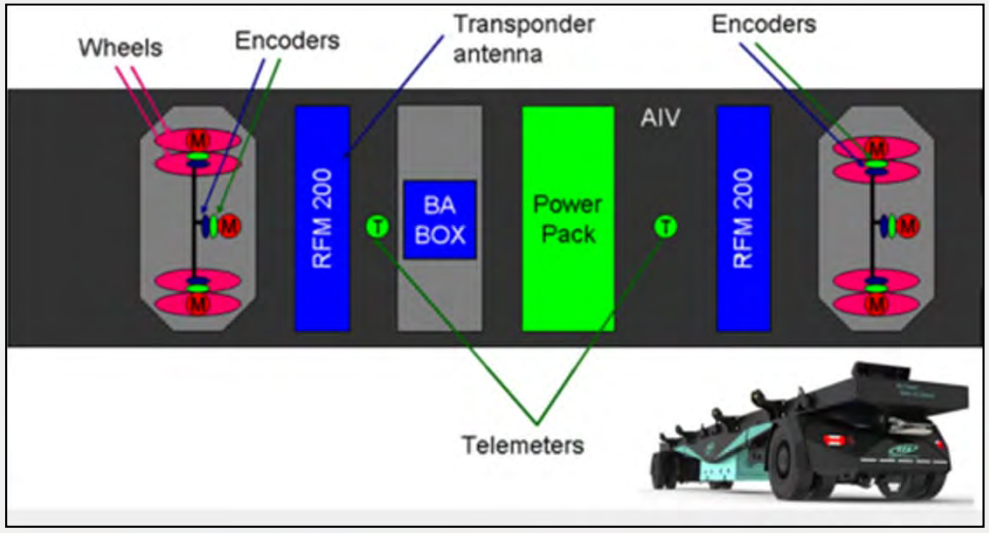
An automated system is never better than the software controlling it!

In October 2014 Gaussin and BA Systemes created the Joint Venture:

Port Automation Systems®

An automated system is never better than the software controlling it!

PAS has a well proven Fleet Management System and the interface to TOS and CMS is right now under customization.



CAPEX

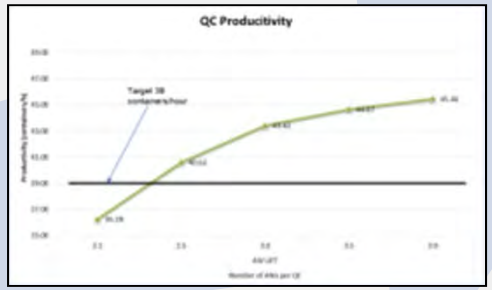
The capital cost will decrease when implementing version 3.0 due to above facts

OPEX

The operating cost will decrease when implementing version 3.0 due to above facts

Productivity

Version 3,0



2,4 AIV /QC

Version 2,0

3,5 AIV /QC

Version 1,0

5,1 AIV /QC

Our simulations have clearly shown that the decoupling and the buffering increases the QC productivity.

What can also be seen from these results, is that the bottleneck is now moved from ATHS to the ASC

GAUSSIN SIMULATION TRACK available to Clients

THANK YOU ! SEE YOU SOON

ELVIO SIMONETTI

GAUSSIN MANUGISTIQUE®