Plug & Navigate Robots for Smart Factories

Kay Fuerstenberg, SICK AG

- Factory logistics is a major bottleneck in mass production

- Current Automated Guided Vehicle (AGV) technology is in an early stage

- AGV deployment requires skilled staff

Plug And Navigate Robots for smart factories

Duration   36 months (Nov 2012 – Oct 2015)

Budget   5.3 M€ (3.3 M€ EC funding)

Coordinator   Dr. Kay Fuerstenberg

Vision

A highly automated factory logistics system to achieve maximum flexibility, cost and energy efficiency and accident free operation
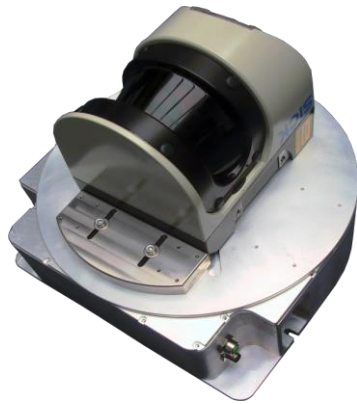
SAFE
GREEN
FLEXIBLE
EFFICIENT

General objective

Develop, demonstrate and validate a generic automation system for factory logistics in modern factories based on advanced AGVs
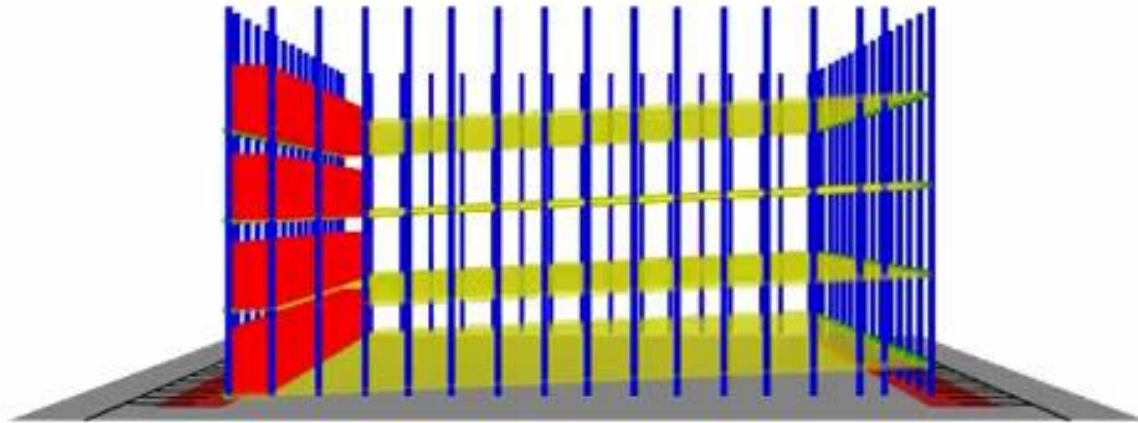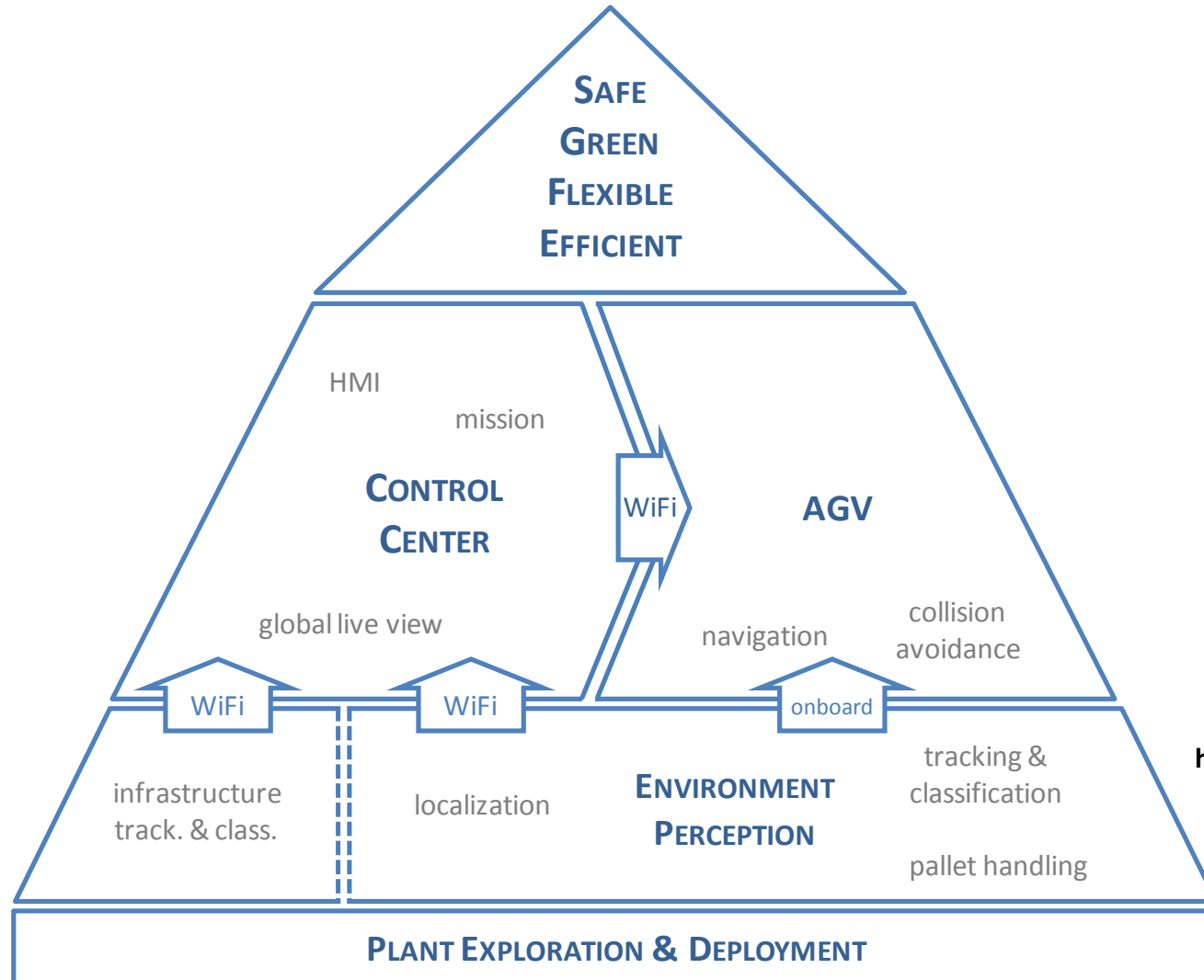
1. Fleet management control center with intuitive HMI

2. Plant exploration by 3D mapping and automated route map creation

3. Flexible/autonomous global on-board path planning and local navigation

4. Autonomous pallet handling system for loading and unloading

5. Contour-based self-localization

6. On-board sensing system by means of omnidirectional stereo camera and laser scanners for increased safety

7. Cooperative infrastructure and vehicle-based system for blind spot monitoring

- **Additional Development**

- True 6 DOF pose estimation
- Stop & Go measuring mode

PAN ROBOTS
Plug&Navigate robots for smart factories

SAFE
GREEN
FLEXIBLE
EFFICIENT

HMI

mission

CONTROL CENTER

WiFi

AGV

global live view

navigation

collision avoidance

WiFi

WiFi

onboard

https://youtu.be/ERxViRzi440

infrastructure track. & class.

localization

ENVIRONMENT PERCEPTION

tracking & classification

pallet handling

Video

PLANT EXPLORATION & DEPLOYMENT

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