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Sapienza Innovazione

REACH & INDUSTRIA 4.0

- INDUSTRIA 4.0 - tecnologie portanti
- REACH nell'ambito INDUSTRIA 4.0
- SENSING-DATA FUSION-BIG DATA ANALYTICS
- SAFETY MONITORING & AUTOMATION
- ALERT-RISK-INSURANCE TECHNOLOGY



Siemens focuses on electrification, automation and digitalization – and is actively picking up on new technological developments

Digitalization



Automation



Electrification

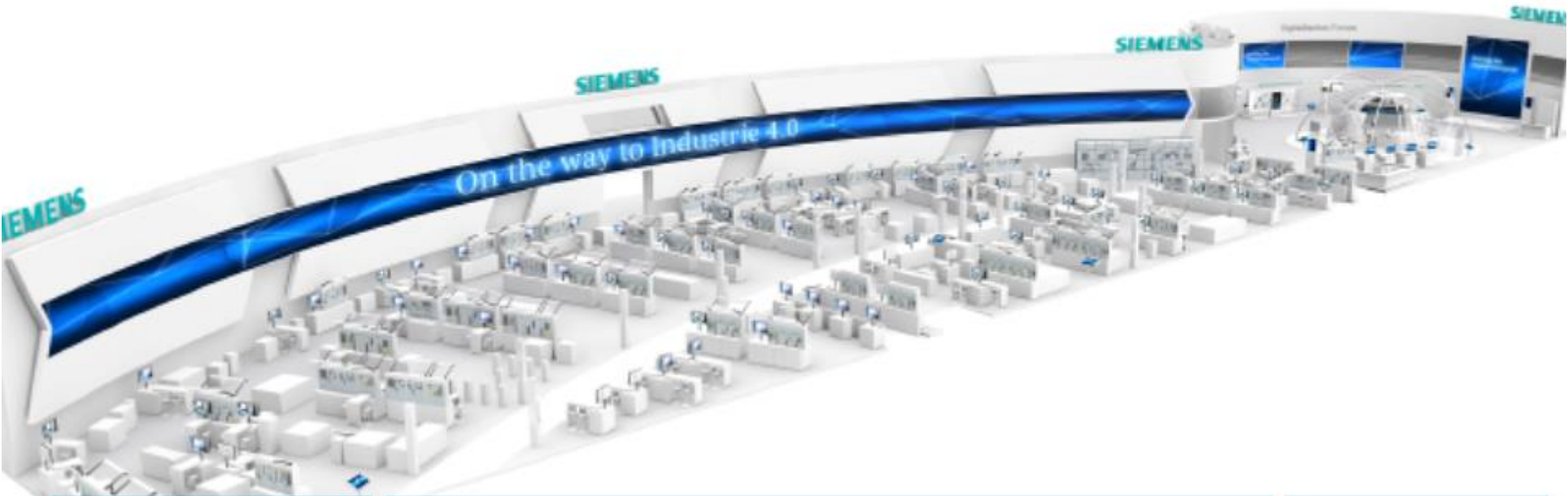


Enablers

- Sensors
- Computing power
- Storage capacities
- Data analytics
- Networking ability



Siemens at the Hannover Messe 2015



Energy

Automation

Digitalization



1.) Rete di sensori specifica per esposizione chimica

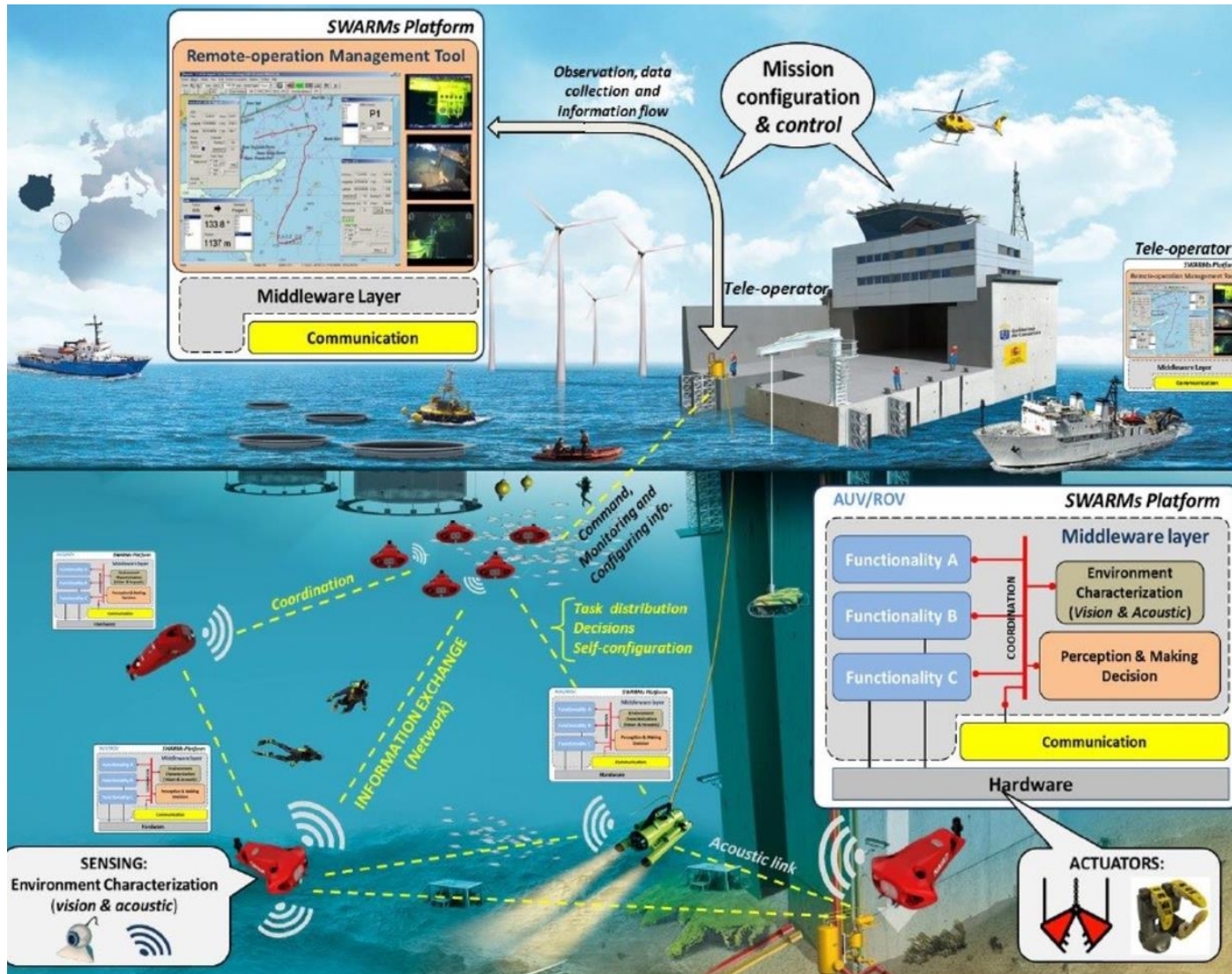
- (i) Monitoraggio parametri di impianto primario
- (ii) Monitoraggio parametri ambientali
- (iii) Monitoraggio parametri bio-metrici degli operatori esposti

2.) Sviluppo sistemi avanzati di analisi integrata dei dati e decision making

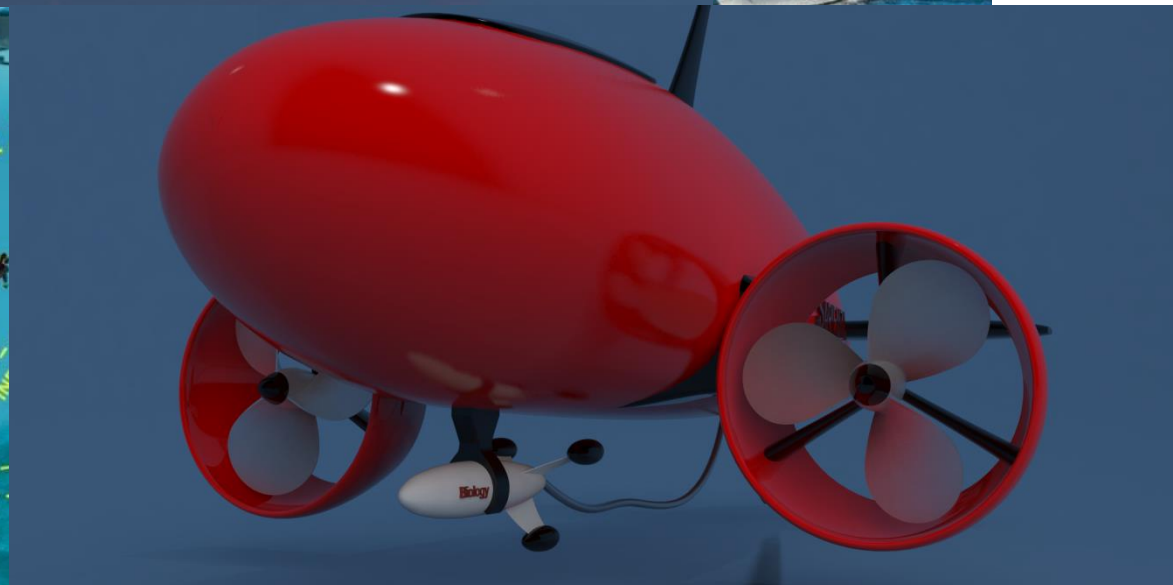
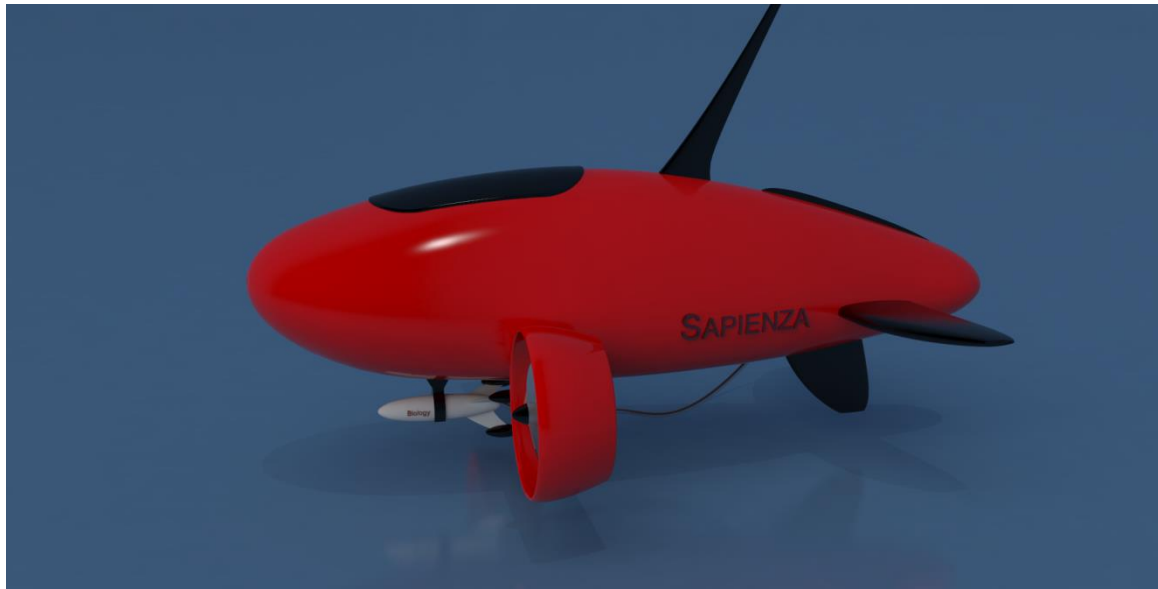
- (i) Filtraggio dati via data fusion / modello del processo (e.g. Kalman etc.)
- (ii) Sviluppo algoritmi di data-reduction e feature-extraction (Kernel machine per mappare lo stato di rischio in real-time ed anche in forma predittiva)
- (iii) Sviluppo di algoritmi di allarme sullo stato di esposizione chimica (e.g. ROC analysis)
- (iv) Optimal tuning della sensibilità all'allarme basato su funzione costo
- (v) Decision making (gerarchia allarmi interni ed azione finale). Monitoring / Inspecting

3.) Fruibilità immediata del processo elaborazione dati (e.g. realtà aumentata)

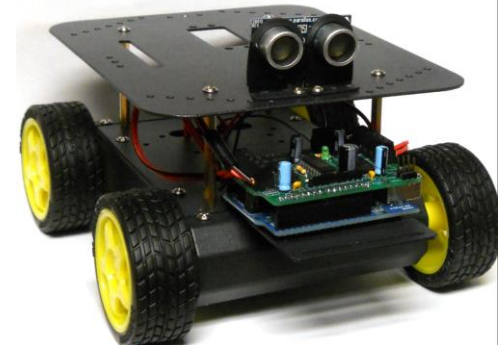
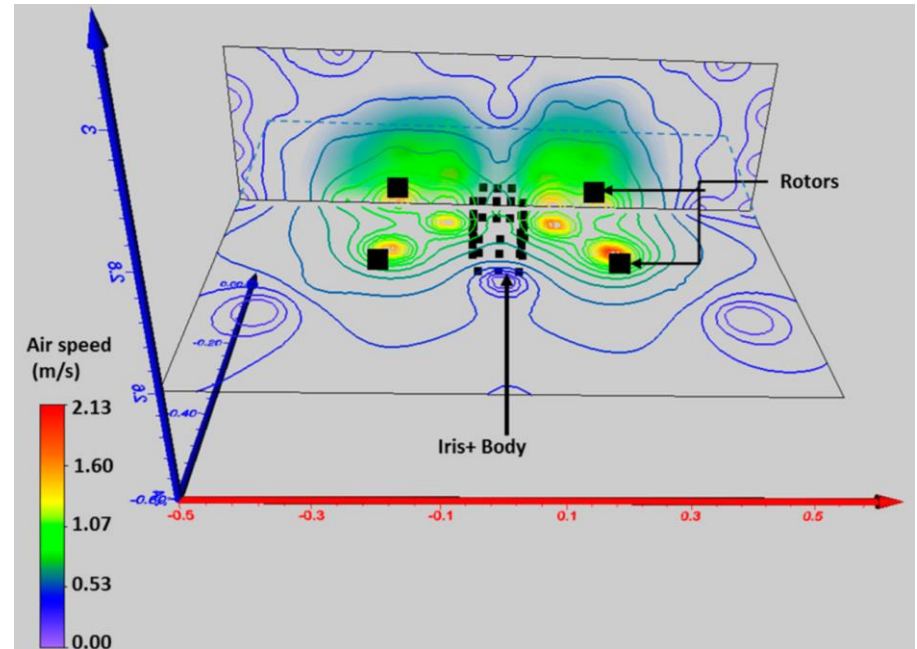
SENSING THE ENVIRONMENT POLLUTANT BY MOBILE SENSED PLATFORMS



ED PLATFORMS



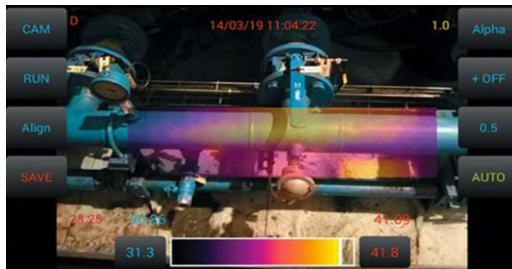
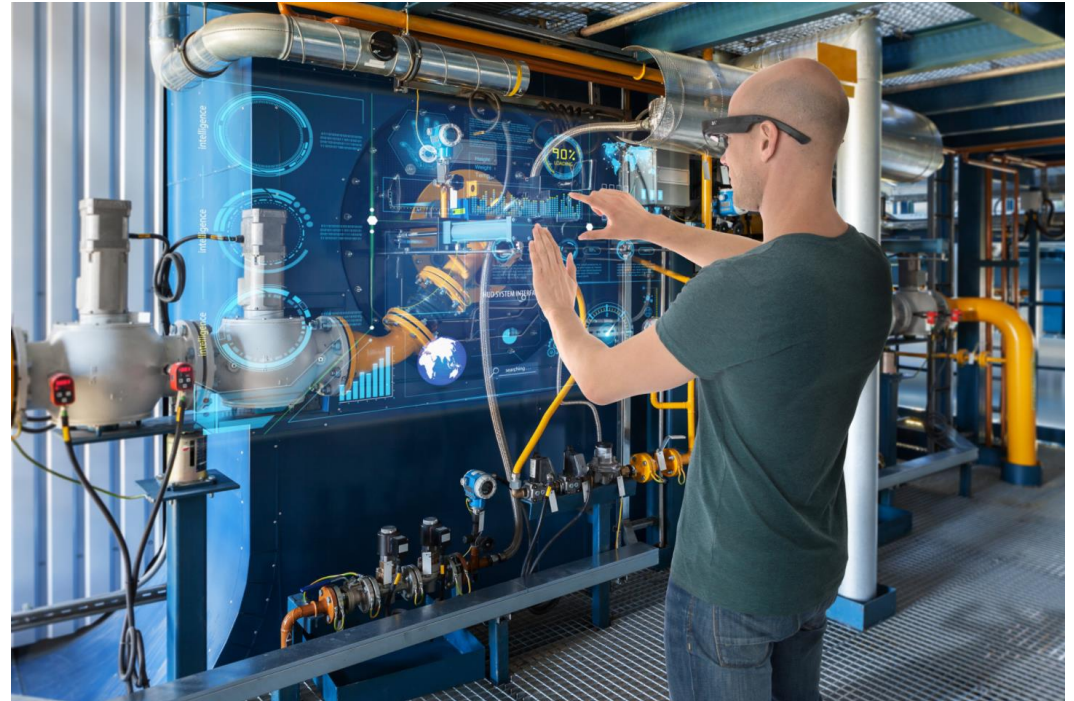
SENSING THE ENVIRONMENT POLLUTANT BY MOBILE SENSED PLATFORMS



SENSING THE ENVIRONMENT POLLUTANT BY COOPERATIVE MOBILE SENSED PLATFORMS



REAL-TIME SENSING & AUGMENTED REALITY OF CHEMICAL POLLUTANT



Data Analysis Process

Integrazione REACH analysis e Industria 4.0

Acquisizione Dati

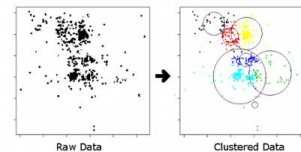


SENSORI:

- Specifici per chemical pollutant
- Condizioni fisico-chimiche-ambientali
- Condizioni impianto
- Condizioni operatori umani

Data Fusion & Filtering
+
Features Extraction

Motore processamento dati



Supervised Learning

Unsupervised learning

Chem
Danger
Classifier

Alarm

MONITORING

+

INSPECTION

NO

YES

EMERGENCY
ACTION

