



# Intelligent Robotic Porter System

**IRPS**

**February, 2009**  
**ANA, FARO, Portugal**

**LIMS**

**LIDAR Imaging & Measurement System**

**ECR2 presentations**

**[www.irps-project.net](http://www.irps-project.net)**





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LIMS

LIDAR Imaging & Measurement System

- **STATUS**

see : [http://ftp.irps-project.net/PUBLICATIONS/videos/LIMS-Videos/LIMS-Dev-History\\_ECR2.avi](http://ftp.irps-project.net/PUBLICATIONS/videos/LIMS-Videos/LIMS-Dev-History_ECR2.avi)

- **Next step**

see : [http://ftp.irps-project.net/PUBLICATIONS/videos/LIMS-Videos/LIMS-NextStep\\_ECR2.avi](http://ftp.irps-project.net/PUBLICATIONS/videos/LIMS-Videos/LIMS-NextStep_ECR2.avi)





# LIMS a modular component for Mobile Robotic Platforms

- **LIMS, LIDAR Imaging and Measurement System is an accurate 3D sensing & measurement system developed within the IRPS project as a modular component for Mobile Robotic Platforms (MRP)**

see : [http://ftp.irps-project.net/PUBLICATIONS/videos/LIMS-Videos/LIMS-Internals&Performance\\_ECR2.avi](http://ftp.irps-project.net/PUBLICATIONS/videos/LIMS-Videos/LIMS-Internals&Performance_ECR2.avi)

- **LIMS enables fast dense 3D mapping of large areas, populated with sparse objects.**

See : [http://ftp.irps-project.net/PUBLICATIONS/videos/LIMS-Videos/LIMS-Applications\\_ECR2.avi](http://ftp.irps-project.net/PUBLICATIONS/videos/LIMS-Videos/LIMS-Applications_ECR2.avi)

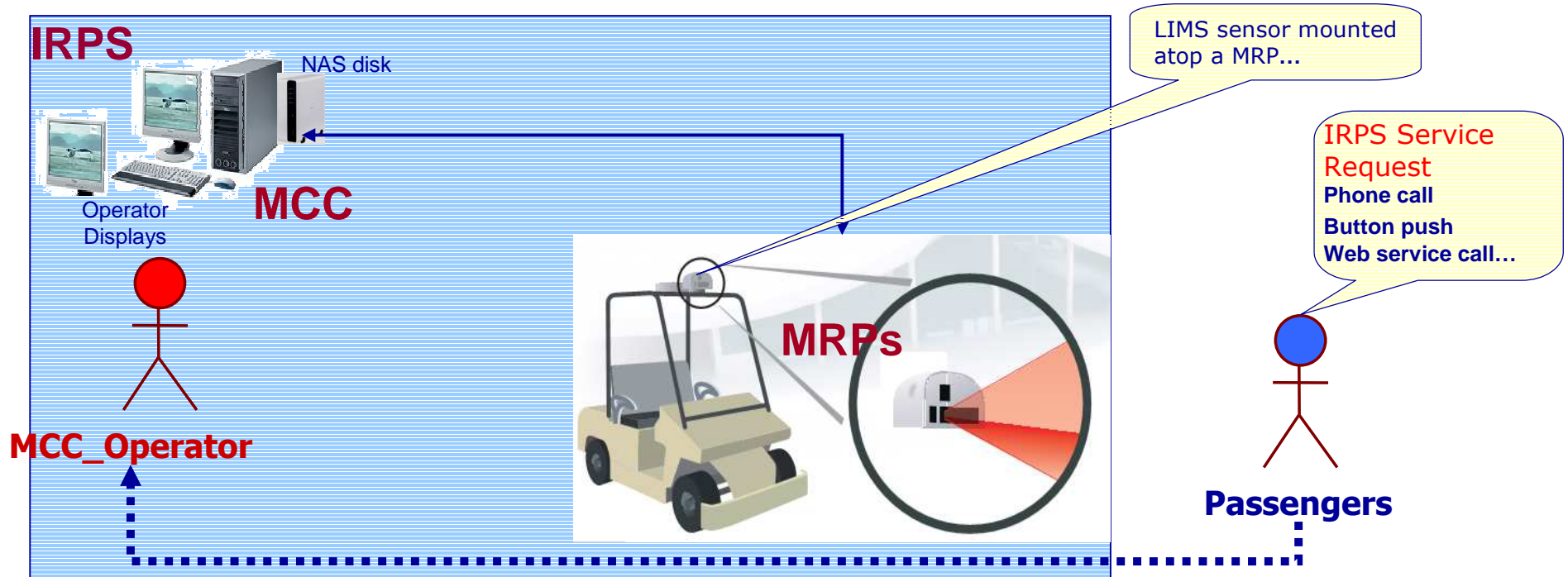




# LIMS within the IRPS project

## System Context

- MCC Operator manages Mobile Robotics Platforms (MRPs)
- Help passengers by carrying them & luggage from one place to another





# LIMS Concept & Interfaces

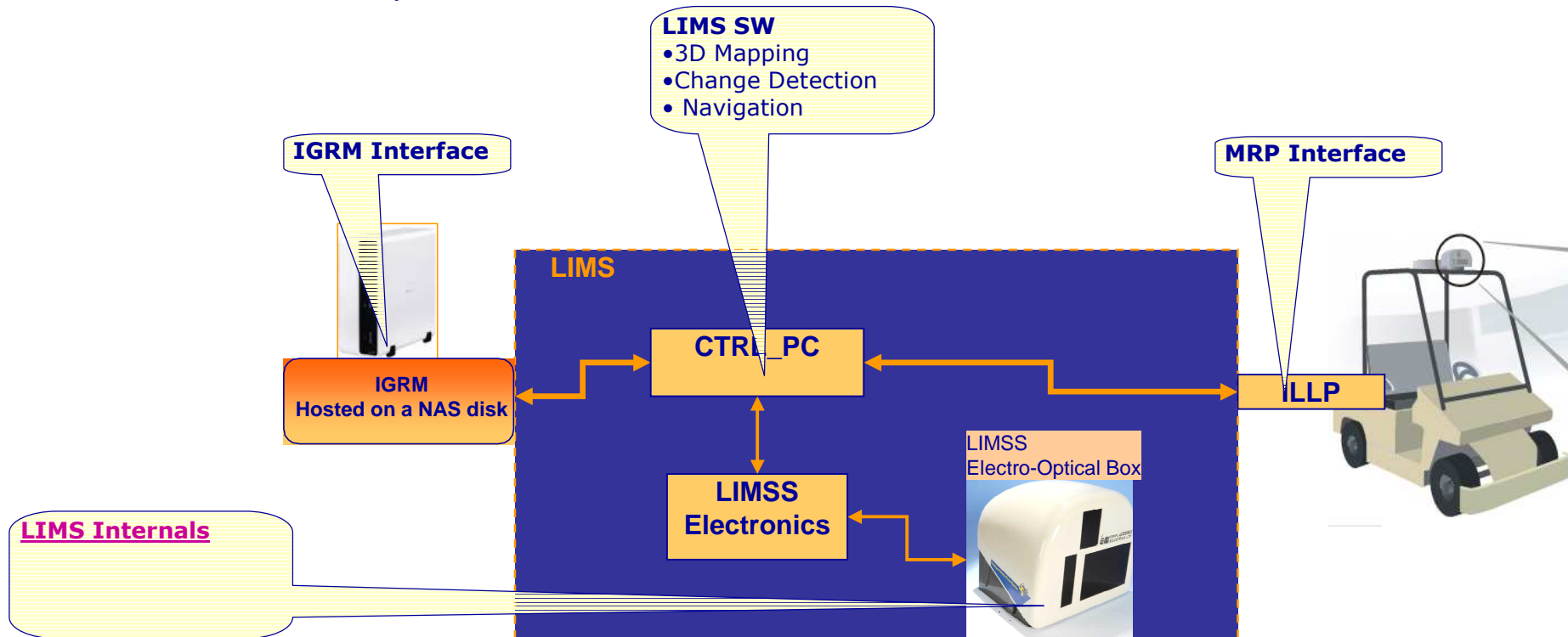
- **LIMS has two main operation modes :**
  - **Calibration** : where real time LIDAR data of the area of operation is acquired and linked to a database of the 3D Model of the Environment ( called IGRM for IRPS Global Reference Model)  
*see* : [http://ftp.irps-project.net/PUBLICATIONS/videos/LIMS-Videos/LIMS-Calibration\\_ECR2.avi](http://ftp.irps-project.net/PUBLICATIONS/videos/LIMS-Videos/LIMS-Calibration_ECR2.avi)
  - **Navigation** : where real time LIDAR data is compared with the 3D Global Reference Model data to provide accurate **Localisation & Change Detection**  
*see* : [http://ftp.irps-project.net/PUBLICATIONS/videos/LIMS-Videos/LIMS-SystemOperation\\_ECR2.avi](http://ftp.irps-project.net/PUBLICATIONS/videos/LIMS-Videos/LIMS-SystemOperation_ECR2.avi)





# LIMS Architecture

- LIMS is to be configured with IGRM and ILLP ( Interface to Low Level Platform) interfaces





# LIMS Applications

- LIMS applications are primary for robotic applications requiring 3D sensing in large areas with sparse objects.
- Applications range from
  - millimetric accuracy navigation a autonomous systems in large public area to
  - security systems ( supervision, search for hasardous objects ) over large areas and systems.
  - quality control over large objects( search of imperfections on rails, ..)
- **See** : [http://ftp.irps-project.net/PUBLICATIONS/videos/LIMS-Videos/LIMS-Applications\\_ECR2.avi](http://ftp.irps-project.net/PUBLICATIONS/videos/LIMS-Videos/LIMS-Applications_ECR2.avi)

