

Experiential Living Lab for the Internet Of Things



Logistics Case Presentation (BIBA)
22. June 2011, Aachen

Stefan Wellsandt
BIBA – Bremer Institut für Produktion und Logistik GmbH
University of Bremen

Intra-logistics – A dangerous terrain

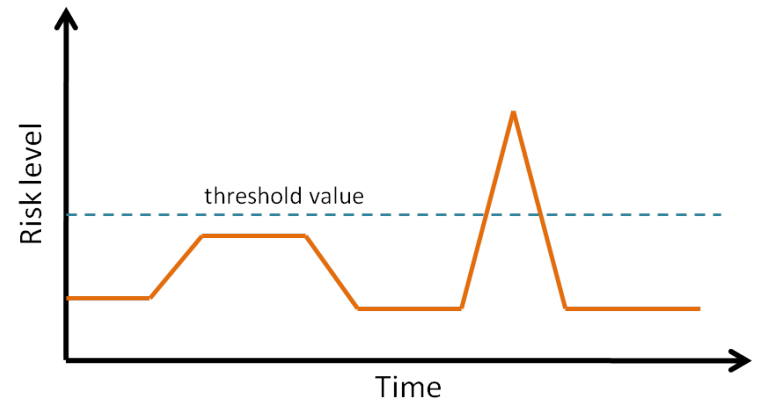


They were not aware of the risk

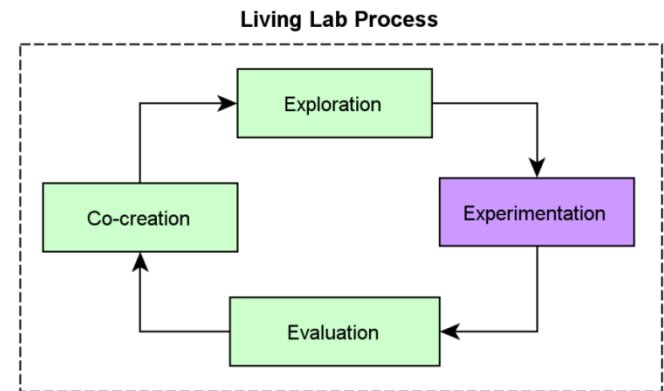
Goal and Scope of the case



Increase safety for persons, transported and stored goods by displaying higher risk situations in an intra-logistics process.



Ensure continuous improvement and maintenance of the service through Living Lab approach.

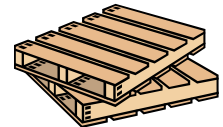


Pallot M. (2009)

Intra-logistics components



- Fork lifter (transporting palettes)
- Warehouse worker (operating fork lifter)
- Palette (containing packages)
- Packages (containing goods)



Each component is equipped with sensors

Describing context through IoT



Context :

Fragile goods can break if not handled with care.

Translation into IoT :

Fork lifter	+ accelerometer	= driving / staying
Driver	+ heart rate meter	= stressed or not
Palette	+ air pressure sensor	= height of transported palette
Palette	+ accelerometer	= angular or level
Package	+ RFID tag	= fragile goods

Individual data is merged and interpreted as a **higher risk situation** since packages can fall off the palette and goods might break because the palette is above ground.

Awareness of risk in real time can prevent dangerous situations.
Counter measures are up to the user of the tool.

Students + Experts

Arduino
Tool Kit

Serious
Game

Experimental
Area



Perspectives

- Warehouse workers
- Warehouse managers
- Suppliers
- Customers
- IoT experts
- Product quality experts
- Safety officers

Activities

- ⇒ discuss latest experience with current IoT-setup
- ⇒ evaluate risky situations in intra-logistics
- ⇒ express situations through sensor data
- ⇒ adjust IoT environment to own purposes

Thank you!

Things, Sensors and Context



Component	ID
Fork lifter	1
	2
	3
Driver	4
Palette	5
	6
Packages	7
	8
	9
...	...

Sensor
Temperature
Moisture
GPS
Heart rate
Accelerometer
Air pressure
Temperature
Light level
(RFID tag)
...

Context
Heat, Cold
Rain, Fog
Location
Stress level
Level
Height
Heat, Cold
Bright, Dark
Information
...