Collaborative Project

ASPIRE

Advanced Sensors and lightweight Programmable middleware for Innovative Rfid Enterprise applications

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Training Material and Workshops

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http://moodle.fp7-aspire.eu/

Executive Summary

ASPIRE Deliverable D7.5 reports on the organization, support and conduction of trainings and workshops, targeted to researchers, students, engineers and other parties. This report gives details on ASPIRE training activities. Note that during this period training activities were confined to presenting early developments of the ASPIRE project. Training activities intensified in the second and third year of the project, following also the release and gradual advancement of the AspireRfid Open Source Project (http://wiki.aspire.ow2.org/).

An electronic copy of all materials is available from http://www.fp7-aspire.eu/public/1/ and a full set of workshop materials, peer review analysis by participants and questionnaire form is available from the ASPIRE Project Manager on demand. This document has been updated annually in order to timely include training activities undertaken within the project.

1. Introduction

The main outcome of ASPIRE in terms of a product is the ASPIRE middleware platform. The ASPIRE platform and its development claimed a significant size of research and innovation work. Therefore, one project objective was to ensure the proper dissemination, training and exploitation of the project results both as a complete ASPIRE outcome and of the individual bits and pieces of research work that make an inherent basis for the proper functioning of the ASPIRE middleware platform.

The successful strong impact of the project can be measured in terms of return of investment. However, as the motivation for the project was the promotion and bringing to the SMEs the RFID technology, training became one critical activity for achieving the project objectives and high impact.

ASPIRE organized a number of RFID Information Days, a way to contacting SMEs and promoting RFID in general. Another objective is to show that adopting ASPIRE is a low cost solution for SMEs (e.g., when adopted for the supply chain management). The RFID Information Days were organized in almost all partners' countries and targeted specifically SMEs. The RFID Information Day's were used as a primary mechanism to deriving user requirements and privacy-related requirements, as detailed in deliverables D2.2 and D2.5.

Training was undertaken to train potential end-users of the project results, as well as researchers and other interested parties in the ASPIRE concepts and technical outcomes. Training activities included: (a) Annual training seminars, targeting students, researchers, and interested parties from the industry on the technologies supporting the project, as well as major outcomes. (b) Workshops targeting experts in the research field, which need to gain insights into latest technical/technological developments of the project. (c) Frequent presentations emphasizing on how the ASPIRE middleware technologies can boost research and development in RFID systems and solutions. The training is divided into training for academia and training for SMEs. RFID Information Day can act as both training for academia and SMEs.

ASPIRE Trainings in form of workshops and courses are available to the Research and Education communities and all scientific sectors without discrimination between users and sites. Trainings and workshops are taking place and have been done to train potential end-users of the project results.

This deliverable was maintained as a "living" document for the ASPIRE trainings. Updates have been made at the end of each year of the project. This deliverable includes reports of the organization details and results, along with pointers to related training material on RFID, RFID middleware and the AspireRFID middleware. Following recommendations from the ASPIRE reviewers this material is being uploaded in a specialized e-learning platform, http://moodle.fp7-aspire.eu.

The document is organized as individual contributions to training made by the consortium partners.

2. Trainings and Workshops

2.1 Training Activities

2.1.1 AIT ASPIRE RFID Training, Course and Demonstration

July 1st, 2009

Training Profile and Description	
Training Workshop Title	RFID Systems and the Internet of Things
Place	Athens Information Technology Peania Campus 0,8 Km Markopoulou Ave.
Schedule – Time Table	• 10:30-11:45 Overview of RFID Technology & Applications and the Internet of Things (Prof. John Soldatos) • 11:45-13:00 The RFID EPC Network Architecture (Prof. John Soldatos) • 13:00– 14:00 Lunch Break • 14:00-15:00 Open Source RFID Middleware Solutions and the AspireRfid FOSS middleware (Nikos Kefalakis MSc., Nektarios Leontiadis MSc.) • 15:00-16:00 RFID Laboratory Demonstrations (Nikos Kefalakis MSc.) • 16:00-17:00 Programming RFID Systems with the AspireRfid Middleware (Nikos Kefalakis MSc.)
Training Methodology	• Lectures • Lab Visits • Hands-on Training
Curriculum	• Overview of RFID Technology & Applications and the Internet of Things (oral presentation) • The RFID EPC Network Architecture (oral presentation) • Open Source RFID Middleware Solutions and the AspireRfid FOSS middleware (oral presentation) • RFID Laboratory Demonstrations (lab demonstration) • Programming RFID Systems with the AspireRfid Middleware (oral presentation and lab demonstration)
Number of Participants	25
Profile of Participants	MSc. Students from Computer Science and Computer Engineering

June 29th, 2010

Training Profile and Description	
Training Workshop Title	RFID Systems and Software
Place	Athens Information Technology Peania Campus 0,8 Km Markopoulou Ave.

Schedule – Time Table	• 10:30-12:00 The RFID EPC Network Architecture (Prof. John Soldatos, Dr. Nikos Konstantinou) • 12:00– 13:00 Sample RFID Systems and Applications (Video Presentations) o RFID in Apparel o RFID in Registration Management (Prof. John Soldatos, Nikos Kefalakis, MSc.) • 13:00– 14:00 Lunch Break • 14:00-15:00 Open Source RFID Middleware Solutions and the AspireRfid FOSS middleware (Nikos Kefalakis MSc.) • 15:00-16:00 RFID Laboratory Demonstrations (Nikos Kefalakis MSc.) • 16:00-17:00 Programming RFID Systems with the AspireRfid Middleware (Nikos Kefalakis MSc.)
Training Methodology	• Lectures • Lab Visits • Hands-on Training
Training Material	In the scope of the training seminar, material from the ASPIRE Moodle was used
Curriculum	• Introduction to RFID and the Internet-of-Things (oral presentation) • Introduction to RFID Middleware (oral presentation) • RFID EPC Architecture and Standards (oral presentation) • Introduction to ASPIRE and AspireRfid (oral presentation) • ASPIRE Architecture and Middleware (oral presentation and lab demonstration) • ASPIRE Programmable Language and Engine (oral presentation and lab demonstration) • ASPIRE Tools and IDE (oral presentation and lab demonstration) • ASPIRE Pilots and Demonstrations (oral presentation and video demonstrations)
Number of Participants	20
Profile of Participants	MSc. Students from Computer Science and Computer Engineering

AIT's Moodle platform online course

Training Profile and Description	
Training Workshop Title	Online ASPIRE Training
Slides Available at	http://moodle.fp7-aspire.eu/
Course curriculum	• Introduction to RFID (Powerpoint presentation with notes). • Introduction to RFID Middleware (Powerpoint presentation with notes). • EPC Essentials and EPC Architecture (Powerpoint

	presentation with notes). • EPC Middleware Standards (Powerpoint presentation with notes). • Introduction to ASPIRE and AspireRfid (Powerpoint presentation with notes). • ASPIRE Architecture and Middleware (Powerpoint presentation with notes). • ASPIRE Programmable Language and Engine (Powerpoint presentation with notes). • ASPIRE Tools and IDE (Powerpoint presentation with notes). • ASPIRE Pilots and Demonstrations (Powerpoint presentation with notes). • A quiz (sixty questions) with automatic evaluation. • A list of bibliographic references (PDF document).
Training Methodology	• Lecture Notes
Course Outline	1. Introduction to RFID Technology Discusses the essentials of radiofrequency identification including tags, readers, frequencies as well as benefits and applications. 2. Introduction to RFID Middleware Introduces RFID middleware and underlines its importance. Furthermore it surveys main RFID middleware projects/products including OSS initiatives. 3. Introduction to EPC and EPC Architecture Provides a close overview on the EPC Protocol, its architecture and its capabilities. 4. EPC Middleware Standards Analyzes the EPC-related standards and the corresponding key concepts, giving a functional and technical area overview. 5. ASPIRE and AspireRfid Provides a high-level overview of the ASPIRE project and the related open-source AspireRfid project. 6. ASPIRE Architecture and Middleware Provides an in-depth discussion about the modules that comprise the ASPIRE architecture, their interfaces and internal functions. 7. ASPIRE Programmable Language and Engine Presents the concept of programmability in the project. Analyzes the programmable language developed in terms of the project and the engine responsible for implementing the described actions. 8. ASPIRE Tools and IDE Presents the functionality offered by the tools developed in the scope of the project, the IDE and describes how all these together can offer complete RFID solutions. 9. ASPIRE Pilots Presents the use cases that were designed and demonstrated in the scope of the project, outlining the

	respective objectives, main observations and conclusions.
Profile of Participants	RFID Integrators, Users, Students

AIT's Internal Training on ASPIRE middleware 7th & 8th of September, 2009

Training Profile and Description	
Training Workshop Title	RFID Systems and Software
Place	Athens Information Technology Peania Campus 0,8 Km Markopoulou Ave.
Schedule – Time Table	• 12 00 Welcome, Objectives of the Meeting, Overview of the Agenda (John Soldatos, AIT) • 12 15 Partner Presentations – Short technical update from each partner and future plans – Aspirations (All partners 5-10' min per partner) • 13 30 Lunch Break • 14 30 AspireRFID Modules Technical Overview (Nikos Kefalakis, AIT) o High level programming of the AspireRFID Middleware o AspireRFID Process Description Language • 15 15 AspireRFID Laboratory Demonstration (Nikos Kefalakis, AIT) o Discussion / Q&A • 15 45 Coffee Break • 16 00 Training Session: Developing for AspireRfid (Nikos Kefalakis, AIT) o Code crawling of the AspireRFID trunk o Development Requirements o Downloading the Source Code at your Eclipse • 17 30 Partners development Environment Configuration/Questions (Nikos Kefalakis, AIT)
Training Methodology	• Lectures • Lab Visits • Hands-on Training
Curriculum	• AspireRFID Modules Technical Overview (oral presentation) o High level programming of the AspireRFID Middleware o AspireRFID Process Description Language • AspireRFID Laboratory Demonstration (oral presentation and lab demonstration) o Discussion / Q&A • Training Session: Developing for AspireRFID (oral presentation and hand on experience) o Code crawling of the AspireRFID trunk o Development Requirements o Downloading the Source Code at your Eclipse

	• Partners development Environment Configuration/Questions (oral presentation and hand on experience)
Number of Participants	12
Profile of Participants	ASPIRE Engineers

June 23rd, 2010

Training Profile and Description	
Training Workshop Title	Presentation and demonstration of functionalities/capabilities of the AspireRFID middleware and tools in the scope of a joint meeting between ASPIRE and the RFID Farm-to-Fork ICT PSP project.
Place	Athens Information Technology Peania Campus 0,8 Km Markopoulou Ave.
Schedule – Time Table	• 10 00 - 10 30 Short Presentation of ASPIRE project, John Soldatos, AIT • 10 30 - 11 00 Short Presentation of F2F Project, Lynsey Jones • 11 00 - 11 15 Coffee Break • 11 15 - 11 30 The AspireRfid Open Source Project, John Soldatos, AIT • 11 30 – 13 00 Building an RFID Solution with AspireRfid, Nikos Kefalakis, AIT o AspireRfid Architecture o Reader Access / Hardware Abstraction Layer o Filtering Information and Generating Business Events o Sharing information -Connecting to ERPs o The AspireRfid tools and the AspireRfid Integrated Development o Environment for RFID Solutions • 13 00 - 14 00 Lunch • 14 00 - 15 30 AspireRfid Demonstration (Live at AIT Labs) , Nikos Kefalakis, AIT o Filtering & Collection o Business Events Generation o Mobile Reader o AspireRfid Tools • 15 30 - 17 00 Discussing and Drafting an Architecture for the F2F solution • 17 00 - 17 30 Next Steps for the ASPIRE F2F collaboration
Training Methodology	• Lectures • Lab Visits • Hands-on Training
Curriculum	• Short Presentation of ASPIRE project (oral presentation) • Short Presentation of F2F Project (oral presentation)

	• The AspireRFID Open Source Project (oral presentation)
	• Building an RFID Solution with AspireRFID (oral presentation)
	  o AspireRFID Architecture
	  o Reader Access / Hardware Abstraction Layer
	  o Filtering Information and Generating Business Events
	  o Sharing information -Connecting to ERPs
	  o The AspireRFID tools and the AspireRFID Integrated Development
	  o Environment for RFID Solutions
	• AspireRFID Demonstration (oral presentation and lab demonstration)
	  o Filtering & Collection
	  o Business Events Generation
	  o Mobile Reader
	  o AspireRfid Tools
	• Discussing and Drafting an Architecture for the F2F solution(oral presentation)

Number of Participants	16
Profile of Participants	Farm to Fork Consortium (Managers & Engineers) The RFID Farm-to-Fork project aims at organizing traceability pilots for the food industry, with a main emphasis on assisting SMEs of the food sector to understand and fully leverage RFID technology.

AIT's Other Training Activities

- May 21st, 2008: Presentation of the ASPIRE Project in the scope of the Greek RFID Information Day, including an illustration of RFID demonstrations.
- December 6th, 2008: Presentation of RFID and ASPIRE to more than 100 undergraduate students, in the scope of a Student Festival in Athens.
- Presentation of ASPIRE (in webinar form) in the OW2 technical committee (21 participants, May 28th, 2009).
- Training of ASPIRE Developers in the scope of Code Camps in May09. The training was carried out in webinar form.
- AIT presented and demonstrated functionalities/capabilities of the AspireRfid middleware and tools in the scope of the RFID-ROI-SME ICT PSP project kick-off meeting, which was attended by 5 SME Associations and 12 SMEs (including both RFID integrators and potential end-users of RFID technology).
- AIT has provided support to several user and developers of the AspireRFID Open Source Project, through the respective lists of the project. Users and developers from various countries, including China, Thailand (IE Technology Co., Ltd), and Brazil(Informe Air - Inteligência Empresarial) have been supported in their requests about running the demonstrations and generally using the middleware and the tools.
  - As part of this support, AIT has answered over seventy (70) messages with technical questions about using and/or integrating AspireRFID
  - AIT has also provided support to users from the ICT-PSP RFID Farm-2-Fork and RFID-ROI-SME ICT PSP project, which have downloaded and evaluating AspireRFID.

2.1.2 AAU-CTIF ASPIRE RFID Trainings, Course and Demonstration

AAU's PhD Training Profile Description, November 2009

Training Profile and Description	
Training Workshop Title	Internet of Things (IoT)
Place	Aalborg Univeristy
Schedule – Time Table	09:00 – 09:15 Introduction: What is IoT? By Neeli Prasad 09:15 – 11:00 IoT Applications by Albena Mihovska 11:15 – 13:45 Information Shadow (from physical to virtual worlds) by Zheng-Hua Tan 12:00 – 13:00 Lunch Break 13:45 – 5:45 Enabling Technologies, Challenges and Concerns by Neeli Prasad 15:45 – 16:30 Group work to be delivered on Monday Nov. 30, 2009 in IEEE conference paper format max. 5 pages
Training Methodology	• Lectures • Lab Visits • Hands-on Training

Curriculum	• What is IoT?
	• Applications and Scenarios
	  o Retail and logistics
	  o Product management
	  o Surveillance
	  o Smart buildings and green buildings
	  o Telematics
	  o Telehealth
	• Introduction to RFID Technology and RFID Systems
	• information shadow
	• Barcode
	• Computer vision for IoT
	• Physical mobile interaction
	• Data processing
	• Do it yourself: Simple hands-on exercises
	• Enabling Technologies, Challenges and Concerns
	• Physics of RFID
	• Anatomy of an RFID System
	• RFID Tags
	• RFID vs. BarCodes and other AutoID Technologies
	• EPC
	• Serialization
	• Benefits of RFID
	• Security and Privacy Issues and Concerns
	• Standardization
	• Conclusions

Number of Participants	20

Profile of Participants	PhD students and Researchers

AAU Training Profile Description, Fall 2010

Training Profile and Description	
Training Workshop Title	SENSORS AND RFID NETWORKS
Instructor	Neeli R. Prasad
Place	Aalborg Univeristy
Schedule – Time Table	4 full days of lectures (8 half-days) in Fall 2010
Training Methodology	• Lectures • Lab Visits • Hands-on Training
Curriculum	**Description:** The consumers of today's networked world are swamped with information coming from a myriad of applications and services available on their devices, communication infrastructures and internet. By 2020, the information overload will be magnified when Internet of Things (IoT) becomes a reality, i.e. objects, smart devices, services, sensors, etc., interacting with the user and themselves to provide services or information. This course will discuss different scenarios and applications which include Wireless Sensor, Sensor Networking and Protocols, RFID, etc. **The topics covered will be:** Networks including mobile ad-hoc networks and sensor networks routing in wireless multi-hop Software and hardware design and implementation of wireless sensing technologies Sensor data collection, assimilation and manipulation RFID operations and software development Wireless sensor network architecture design Sensor Networking and Protocols Security and Privacy Legal and Ethical issues **Course Outline:** Establishing the Sensor Network and RFID Introduction – Sensor Applications Sensor Hardware Platforms and Architectures Sensor Networking and RFID Sensor Networking and Protocols Security and privacy issues in RFID and Sensor Networks The need for security Sensor networks vs. Ad hoc networks Protocols for key establishment Vulnerability of routing protocols and various attacks Other issues in security and Privacy Future Directions and Conclusions

	Legal and Ethical issues
Number of Participants	40
Profile of Participants	Prerequisites: Basic knowledge of mobile and wireless communications, e.g. as obtained through the M.Sc. engineering studies at Aalborg University, is expected

AAU's Other Training Activities

- AAU presented ASPIRE project and RFID implementation in the CTIF Easy Life lab throughout 2009 and 2010 to visitors from companies, universities, research centers, hospitals, etc.

2.1.3 UJF ASPIRE RFID Training, Course and Demonstration

UJF's Training Profile Description, January to March 2009, 2010, 2011

Training Profile and Description	
Training Workshop Title	Teaching material (in French) for RFID and M2M applications development and deployment based on Aspire RFID
Place	UJF, UFR IMAG, Master Professional track in Informatics, 2nd Year
Schedule – Time Table	60 hours with teacher + 30 hours homework (6 ECTS) Outline: Part 1: Embedded Linux Configuration (15 hours) • Overview of Embedded Operating Systems • Overview of Linux Embedded Distributions • Configuring of Embedded Linux distribution step by step • Installation of embedded Java Virtual Machine Part 2: Machine-to-Machine services (15 hours) • Introduction to Machine-to-Machine services. • RFID and WSN technologies • Related middlewarestandards (EPC Global, NFC Forum) and middlewares. • OSGi application development • Adhoc services (UPnP, DPWS, JINI, SLP, DNS-SD) • Application Integration and Data mediation with JavaEE (JMS, Web Services, RESTFul, ESB, BPM) • Management and monitoring (JMX, LDAP). Part 3: Practice (30 hours with a teacher, 30 hours homework) • Team development of a M2M service including RFID readers (Tikitag, Mir:ror), sensors (IP video camera, USB webcam, temperature, smoke detector, Geiger counter, GPS, weather stations, Wiimotes, Sunspots, Arduino board+XBee, K8055 acquisition board …) and actuators (iBuddys, Nabaztag, Arduino+servomotors,relay ...). The developed service uses and extends SW modules of the OW2 Aspire middleware. It is deployed on industrial low-cost embedded PCs.

	Since January 2011, RFID and sensors material are available to UJF students in a "*fablab*" (factory laboratory) named AIR (Ambient Intelligent Room) http://air.imag.fr . Students can prototype applications and "things" related to ambient intelligence (AmI) in this *fablab*. We encourage students to reuse open source components for the OW2 Aspire RFID project. This is mainly the case for NFC readers and tags, OneWire identifiers, sensors such as SunSPOT, Arduino boards, weather station … The complete list of available material is listed here http://air.imag.fr/mediawiki/index.php/Liste_des_%C3%A9quipements_disponibles 
Training Methodology	• Lectures(http://membres-liglab.imag.fr/donsez/ujf/m2pgi/pm2m/) • Practices • Oral presentation, reports and demonstrations for the final exam. Industrials are invited to the defense.
Training Material	• Slides (http://membres-liglab.imag.fr/donsez/ujf/m2pgi/pm2m/)
Curriculum	http://membres-liglab.imag.fr/donsez/ujf/m2pgi/pm2m/
Number of Participants	13 (between 10 and 15 students par year since 2005)
Profile of Participants	10 Master students and 3 PhD students. 40 students in engineering school (Polytech'Grenoble since 2011).

Remark: some students that had followed this course are now contributors and committers in the OW2 Aspire Project.

Presentation of RFID middleware and Aspire at ESISAR engineering school, November 2008, November 2009 and November 2010

Training Profile and Description	
Training Workshop Title	Presentation of RFID middleware and Aspire at ESISAR engineering school
Place	Valence, France (ESISAR + Pole Tracabilité)
Schedule –	4 hours

Time Table	Part 1: • Context: Internet of Things, Machine-to-Machine • Overview of RFID technologies (passive, active, WSN) • Emergence of NFC • RFID vs 1D/2D barcodes • Application Domains (Privacy Issues and Concerns) • Social aspects • Architectural design patterns • Software standardization efforts (EPCGlobal, NFCForum, JCP) • Examples of RFID middleware • Aspire in detail • Q&A Part 2: Live demonstrations from http://wiki.aspire.ow2.org/xwiki/bin/view/Main/Demos • Supply chain (lego train) • NFC reader for PC (tangible HMI) • NFC phone Midlet (patrol man) Part 3: Presentation of the Supply Chain at the Pole Tracabilité de Valence' show room
Training Methodology	Presentation Demonstration Visit
Training Material	http://membres-liglab.imag.fr/donsez/cours/intergicielsrfid.pdf
Curriculum	ESISAR IR track http://esisar.grenoble-inp.fr/
Number of Participants	21 per year

Preparation and Presentation of a RFID middleware tutorial and of the OW2 Aspire Project at ICAR 2008, August 2008

Training Profile and Description	
Training Workshop Title	Preparation and Presentation of a RFID middleware tutorial and of the OW2 Aspire Project at ICAR 2008 Summer School (organized by Univ of Nice).
Place	Nice
Schedule – Time Table	3 hours Part 1: • Context: Internet of Things, Machine-to-Machine • Overview of RFID technologies (passive, active, WSN) • RFID vs 1D/2D barcodes • Emergence of NFC • Application Domains • Social aspects (Privacy Issues and Concerns) • Architectural design patterns • Software standardization efforts (EPCGlobal, NFCForum, JCP) • Examples of RFID middlewares • OW2 AspireRFID in detail

	• Q&A Part 2: Live demonstrations from http://wiki.aspire.ow2.org/xwiki/bin/view/Main/Demos • Supply chain (lego train) • Tangible HMI • NFC phone Midlet
Training Methodology	Presentation Demonstration
Training Material	http://rainbow.essi.fr/icar08/Documents/RFID/seminaire-intergiciels-rfid.pdf http://wiki.aspire.ow2.org/xwiki/bin/view/Main/Demos
Curriculum	http://rainbow.essi.fr/icar08
Number of Participants	80
Profile of Participants	PhD students, Teachers, Researchers, R&D Engineers

UJF's Other Training Activities

- Presentation of RFID middleware and Aspire at ESISAR engineering school, November 4th 2008.

Training Profile and Description	
Training Workshop Title	Presentation of RFID middleware and Aspire at ESISAR engineering school
Place	Valence, France (ESISAR + Pole Tracabilité)
Schedule – Time Table	4 hours Part 1: • Context: Internet of Things, Machine-to-Machine • Overview of RFID technologies (passive, active, WSN) • Emergence of NFC • RFID vs. 1D/2D barcodes • Application Domains (Privacy Issues and Concerns) • Social aspects • Architectural design patterns • Software standardization efforts (EPCGlobal, NFCForum, JCP) • Examples of RFID middleware • Aspire in detail • Q&A Part 2: Live demonstrations from http://wiki.aspire.ow2.org/xwiki/bin/view/Main/Demos • Supply chain (lego train) • NFC phone Midlet Part 3: Presentation of the Supply Chain at the Pole Tracabilité de Valence' show room
Training Methodology	Presentation Demonstration Visit
Training Material	http://membres-liglab.imag.fr/donsez/cours/intergicielsrfid.pdf
Curriculum	ESISAR IR track http://esisar.grenoble-inp.fr/

Number of Participants	21
Profile of Participants	1 professor and 20 students (5th year)

2.1.4 INRIA ASPIRE RFID Training, Course and Demonstration

INRIA has trained about 10 persons to use AspireRFID IDE suite and other modules such as embedded ALE modules.

INRIA's Other Training Activities

- Aspire has been presented by INRIA through its animal hospital trial to the eHealth events on Nov. 16th in Lille, France and Nov. 30th in Charleroi, Belgium in front of an attendance composed of pharmacists, eHealth professional and RFID institutions.
- Aspire project has been presented by INRIA through general RFID courses in Master course in Lille, France.

2.1.5 IT ASPIRE RFID Training, Course and Demonstration

Training Profile and Description	
Training Workshop Title	RFID (PhD supplementary course) System level simulation group
Place	IT (Institute of Telecommunications)
Schedule – Time Table	Day 1. What is RFID? (1hr) Day 2. RFID history Day 3. RFID standards Day 4. RFID physical layer Day 5. RFID medium access control layer Day 6. RFID middleware and applications Day 7. RFID system level simulator Day 8. RFID market penetration, use cases and user adoption. Day 9. Future trends
Training Methodology	• Lectures
Number of Participants	6
Profile of Participants	PhD students and Researchers

Training Profile and Description	
Training Workshop Title	System level simulation for RFID (PhD supplementary course) System level simulation group
Place	IT (Institute of Telecommunications)

Schedule – Time Table	Day 1. System level simulation (intro) Day 2. Propagation models Day 3. Simulator modes Day 4. Physical layer abstraction models Day 5. MAC and LLRP implementation Day 6. Simulator architecture Day 7. Hands on training
Training Methodology	• Lectures • Computer lab
Number of Participants	6
Profile of Participants	PhD students and Researchers

2.1.6 PV ASPIRE RFID Training, Course and Demonstration

The information below is concerning the period from October 2010 until December 2010. Previous periods have been detailed in the formers reports.

During this period, PV has realized conferences, demo & workshop, and information dissemination about ASPIRE.

October 11th & 12th

Training Profile and Description	
Training Workshop Title	Business day
Place	Avignon
Schedule – Time Table	10h00-16h00 Traceability RFID Middleware
Training Methodology	• Information / presentation • Personal dating with specific presentation in accordance to the need.
Number of Participants	12
Profile of Participants	Consultant; SI manager; Companies manager

21th October Organized by the “LaFEDERATION” Institute – Textile industry organization

Training Profile and Description	
Training Workshop Title	Traceability and data management in the textile supply chain
Place	Paris

Schedule – Time Table	9h00-12h00 Traceability RFID/nano tracing techno Middleware/data management
Training Methodology	• Conference et presentation • .
Number of Participants	8
Profile of Participants	Quality manager, Purchasers, lawyer of important textile producer or distributor

25th Innovation Day Bourgogne

Training Profile and Description	
Training Workshop Title	Expo and conference
Place	Villefranche (LYON)
Schedule – Time Table	9h00-16h00 Traceability RFID Middleware Professional application / business cas
Training Methodology	• Information / presentation • Personal dating with specific presentation in accordance to the need.
Number of Participants	15
Profile of Participants	Consultant; SI manager; Companies manager, commerce chamber

4th & 5th November. Qualimed Sup Agro

Training Profile and Description	
Training Workshop Title	Information cession
Place	Avignon
Schedule – Time Table	10h00-16h00 Traceability RFID Middleware Professional application in food and agriculture industries
Training Methodology	• Information / presentation • Personal dating with specific presentation in accordance to the need.
Number of Participants	24
Profile of Participants	Consultant;, Companies manager, PhD, cluster

8th November. Innovation days in Valence

Training Profile and Description	
Training Workshop Title	Innovation day
Place	Valence
Schedule – Time Table	9h00-16h00 Traceability RFID Middleware Professional application / business cas
Training Methodology	• Information / presentation • Personal dating with specific presentation in accordance to the need.
Number of Participants	25
Profile of Participants	Consultant; SI manager; Companies manager, commerce chamber

24th & 25th November. Traceability Trade show

Training Workshop Title	Traceability
Place	PARIS
Schedule – Time Table	9h00-18h00 Traceability RFID Middleware
Training Methodology	• Information / presentation • Personal dating with specific presentation in accordance to the need.
Number of Participants	Visitors 1500. Contacts 30
Profile of Participants	Consultant; SI manager; Companies manager, Quality manager, RFID integrators(SMEs)

3. Conclusions

The ASPIRE project commenced its training activities early on, even though the ASPIRE developments (in terms of RFID middleware and tools) in the first year were at its infancy. The ASPIRE partners organized workshops and presentations that included introductions to RFID technologies, introduction to RFID middleware technologies, platforms and tools, as well as a comprehensive presentation of early developments of the ASPIRE project. The ASPIRE training activities intensified as the project progressed. The main objective of the training was to train researchers and SMEs on how to take most advantage out of the AspireRfid open source project (http://wiki.aspire.ow2.org/). E-learning trainings were also organized for the ASPIRE work and other RFID related topics.

Appendix A Peer Review Evaluation

Peer review was conducted in the form of feedback and evaluation forms distributed during the workshop. Generally the feedback was very positive with most respondents giving a very positive rating of the workshop overall. A full set of feedback and evaluation data is available in the separate peer review report. An example of the evaluation form from one of the courses is given below:

Training Course on RFID in the scope of EC co-funded ASPIRE Project (FP7-215417)

EVALUATION FORM

We would appreciate your honest evaluation of the seminar to help us plan future programs.

Personal Information (filling the fields of this section is optional)

1. **Name:**
   _____
   _____
2. **Company/University:**
   _____
   _____
3. **Position:**
   _____
   _____
4. **What is your degree of awareness regarding RFID technology? (please circle)**
   a. **I've never heard about this technology**
   b. **General information (press / internet)**
   c. **Specific information coming from my own business area (customer / competitor / exhibition / professional organization)**
   d. **I plan to use RFID technology**
   e. **I already use RFID technology**
5. **Define the purpose you are interested in RFID**
   _____
   _____
   _____

Seminar Evaluation

1. How do you rate this seminar compared to your expectations? (please circle)

	Significantly below my expectations	Met my expectations			Exceeded my expectations a lot
Personal interest and learning	1	2	3	4	5
Professional relevance	1	2	3	4	5

2. What are the major Strengths and Weaknesses of the seminar?

Strengths:
_____
_____
_____
_____
_____

Weaknesses:_____
_____
_____
_____
_____

3. How useful did you find:

	Totally useless				Very useful
The topic	1	2	3	4	5
The material	1	2	3	4	5
The quality	1	2	3	4	5
Discussion/presentation	1	2	3	4	5

4. How helpful did you find the seminar for:

	No helpful at all				Very helpful
Professional development	1	2	3	4	5
Practical application	1	2	3	4	5

5. Please give your comments on the overall organization and logistics of the seminar.

Poor				Excellent
1	2	3	4	5

6. Please assess Professor's:

Name of the Instructor	Totally useless		Very useful		
methodology	1	2	3	4	5
communication skill	1	2	3	4	5
effectiveness	1	2	3	4	5
overall	1	2	3	4	5

7. Please assess the presented Topics:

Presented Topics	Totally useless		Very useful		
Overview of RFID Technology & Applications and the Internet of Things	1	2	3	4	5
The RFID EPC Network Architecture	1	2	3	4	5
Open Source RFID Middleware Solutions and the AspireRfid FOSS middleware	1	2	3	4	5
Programming RFID Systems with the AspireRfid Middleware	1	2	3	4	5
RFID Laboratory Demonstrations	1	2	3	4	5

7. Testimonial- please make a statement of max 20 words about the course you have just completed.

Please note that we might use your testimonial in our next brochure/site update, please check accordingly the box in case you do not want your ☐name, ☐title, or ☐company/University name to be referred in this testimonial. THANK YOU

_____
_____
_____
_____
_____
_____

Thank you for your time….