

# Full Sense

## Requirements Specification

Edition 01 — 11 November 2009  
by Requirements Team

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# **The Purpose of the Project**

## **The User Business or Background of the Project Effort**

### **Content**

This project's scope is to build an intelligent ambience system, composed by a series of sensors that controls the usage of the resources in the Department of Informatics (DI), in Universidade do Minho, and tracks people and equipment movements.

This project was presented by DI personnel, with the need to control infrastructures functioning.

### **Motivation**

Today's infrastructures are typically made by dozens of co-workers, laboratories equipped with expensive material and electric systems, from alarms to air conditioners and elevators, that keep the place running with comfort and security. Controlling all this conditions and objects is a hard task, and smart systems, with sensing networks and proactive activities make managing it all more easy and fail-proof.

The Department of Informatics (DI), in Universidade do Minho is an example of this kind of infrastructures, where controlling the laboratories usage and people and material movements is hard and expensive/time consuming. This project's scope is to produce a smart system that can assure, by a series of networked sensors and other technology, maximum system usability while maintaining a safe and comfortable environment.

However, there's more than the informatics departments in need of this kind of technology. From schools to private offices, they all need an informatics system that control the whole place while maintaining the costs to a minimum and the working conditions as best as possible. So, more than deploying a solution to solve the DI problem, this system should be scalable enough to be quickly adapted to new environments, along with supporting different sensors and actions, while maximizing possible customers.

### **Considerations**

Today's structures maintenance is an expensive business. From bad resources management to energy requirements, from security to people movements (both interior-interior and interior-exterior), companies spend millions in specialized personnel and energy usage to keep the workers productivity at a maximum.

An intelligent system controlling some of this variables, if not most, decreases maintenance and management costs, while proactivity increases productivity and resources management by keeping the system usable with minimum energy/personnel costs.

## **Goals of the Project**

### **Content**

The final product of this project is an informatics system that supports proactive computing, sensing networks and intelligence ambiance, that is highly scalable, so it can be easily adapted to different environments.

## **Motivation**

The DI is an example of the need for an automatic management. The system needs to control who has access to certain areas and which material is being carried to the exterior of the building.

The system must also keep information about the availability of some resources, like reunion rooms or printers, and keep that information available.

## **Examples**

- The system must control and limit the access of personnel to certain areas
- The system must control material movements across the department and away from it
- The system must monitor resources and keep information about their availability

## **Measurement**

These goals are hard to quantify as they're a crucial part of this system. In fact, the capacity of sensing and monitoring is necessary to any intelligent and proactive environment. However the capacity and optimization of the system can improve quality overall, the presence of such qualities is more than an improvement or a necessity - it is an important part of the solution.

For that reason, the best measurement of such goals is: they must be there, implemented and function. And this statement describes, although roughly and neglecting deployment difficulties and variables, the success of the whole project.

Down below in this document there's a detailed list of requisites, some directly related to these goals, and their quantification can help understand how further the development was able to materialize the solutions. Requisites such as the time the sensors take to work or the detection of unauthorized entries can help qualify the overall success of the final product, nevertheless, they're only useful as long as the primary goals are accomplished.

# **The Client, the Customer, and Other Stakeholders**

## **The Client**

### **Content**

Project sponsors:

- Department of Informatics

### **Motivation**

Until now, the Department of Informatics couldn't control the access of strangers to upper floors, along with having no information about the location of some resources e.g. video projectors. Committed to solve the problems, the DI decided to promote and support this system, therefore being able to recognize persons

(strangers or not) and know where are the resources located, solving the problems above.

With this project, the department aim to obtain a system that prevents disappearance of resources and controls people movements inside the building.

## **The Customer**

### **Content**

Customers:

- Department of Informatics
- All kind of departments
- Libraries
- Kindergarten
- Public organizations (courts, etc.)
- Factories
- University residences
- Private homes
- Car parking.

### **Motivation**

When the project finishes, our client can sell it to other organizations. The future customers for the project are organizations who want control something e.g. people - children's or adults - cars, and other resources

In that case system buyers will be able to:

- Control workers
- Track their resources
- Control entry and departure of:
  - Person
  - Valuable resources

## **Other Stakeholders**

### **Content**

Different type of stakeholders :

- Technology experts:
  - Professor Paulo Novais
  - Professor Carlos Baquero
  - Professor César Analide
- Legal experts:
  - Professor Francisco Andrade

## **Users of the Product**

### **The Hands-On Users of the Product**

#### **Content**

- User name – **System Managers**

- *Logs manager*
  - User role:
    - Should do all the monitoring of alerts generated by the system.
    - Should do all maintenance of logs generated by the system.
  - Subject matter experience – Master
  - Technological experience – Master
  - Other user characteristics
    - Attitude to job : should be kept in the area of monitoring
    - Attitude to technology : should know to access the application
    - Linguistic skills: Portuguese and English
- *Human resources manager*
  - User role:
    - Define groups in the system.
    - Define permissions in groups.
    - Add remove and edit human resources
  - Subject matter experience – Master
  - Technological experience – Journeyman
  - Other user characteristics
    - Attitude to job : should be kept in the area of monitoring
    - Attitude to technology : should know how to use the application
    - Linguistic skills: Portuguese and English
- *Physics/Techniques resources manager*
  - User role:
    - Add remove and edit Material resources
  - Subject matter experience – Master
  - Technological experience – Journeyman
  - Other user characteristics
    - Attitude to job : should be kept in the area of monitoring
    - Attitude to technology : should know how to use the application
    - Linguistic skills: Portuguese and English
- User name – **Registered Users**
  - User role:
    - Users that usually need access to the area monitored, as well as the different restricted areas.
    - Each user must have the other associated groups to which it belongs, which consequently allow access to areas where these groups are linked, thus giving the user access permissions.
  - Subject matter experience – Novice
  - Technological experience – Master
  - Other user characteristics
    - Attitude to technology: should know to access the application and conditions of use.
    - Linguistic skills: Portuguese and English
- User name – **Unregistered Users**
  - User role:
    - Corresponds to the case that users need access to the area monitored, without the right to access the reserved areas.
    - These users not share data with system.

- If they need to order the available resources needs to register as guest users.
- Subject matter experience – Novice
- Technological experience – Novice
- Other user characteristics
  - Attitude to technology: should know the conditions of the area that you access, for example, possible existence of cameras filming their journeys.
  - Linguistic skills:

## Motivation

In the department to which the product is redirected, there are a number of technicians responsible for material providing. Currently, they have no control over the entities to whom the material was lent, as well as the sites where it is used, and therefore in these situations there is a need to create records about this information.

The site consists of a public area and an area with restricted access.

In the restricted access area, there are different offices used by teachers of the department, as well as meeting rooms, where companies based in the department work, and lounge areas designed for groups of researchers.

Commonly, teachers, doctoral students, researchers and other students with authorization access these areas. However, there is no specific control for who circulates there. There is only a verbal restraint by those responsible, which is hardly observed, implying that there are cases of robbery and lack of privacy for those who work there.

The public area is used, beyond those mentioned above, by different types of students to attend classes, other University's employees as well as any other people wishing to visit the department e.g. high-schools visits are common .

## Priorities Assigned to Users

### Content

- **Key users:** Registered Users
- **Secondary users:** Managers.
- **Unimportant users:** Unregistered Users.

### Motivation

Registered users need a proper way to accede restricted areas. This access granting action should be intuitive with an easy adaptation from the users so it won't interfere in their day-by-day work with additional delays or tasks.

Managers are also an important group to consider. Since they will often be monitoring the system, its interface should be intuitive and *user-friendly*, with flashy alerts that would help in human carelessness avoidance. Moreover, system manipulation should be easy to learn so that a monitor replacement wouldn't cause any kind of delays, maintaining system's important tasks always up and running.

As for unregistered users, they rarely benefited directly from the system, having no interest in the product. Thus, these types of users do not contribute or complain to the solution presented.

## **User Participation**

### **Content**

- System Manager
  - Logs Manager
    - user control activity
    - material resource control
  - Human resources manager
    - user registration
    - temporary user's logout
  - Physics/Techniques resources manager
    - resource registration
    - resource request timeout
- Registered Users
  - resource request.
  - start a tracking log.
  - consult tracking log.
  - change their personal information.
- Unregistered Users
  - start a anonymous tracking log.
  - start video capture.

## **Mandated Constraints**

### **Solution Constraints**

#### **Content**

This project main constrain is related to technology. The project must support a large number of sensors, thus, the final solution, should be complacent with their different functions and characteristics, like their API that can be sometimes very limited. The incomplete incorporation of different sensors because of compatibility issues would result in partial failure of the project.

#### **Motivation**

One solution proposed by the client was the possibility to use the already available technology like WIFI or fingerprint sensors to identify and grant access to the users. The system should at least, identify some sort of activity using the available technologies as last resource increasing system's redundancy and performance as a whole.

### **Implementation Environment of the Current System**

#### **Content**



The technologies planned to use in this project are the ones available in the Department, like WIFI and fingerprint sensors, and new ones like RFID and different types of motion detection sensors. Cameras will be useful to detect and record unregistered users that were able to enter the restricted areas. The technological environment that will support the system is composed by servers and sensors available in the department.

### **Motivation**

The environment is composed by areas only accessible to registered users. Those areas have access through a door that only opens in presence of someone known by the system. This identification is made using a fingerprint sensor. The project will use all those and monitor the activity, measuring the number of users in those areas. The project will contact the security in case of unregistered users entering restricted areas. Finally the environment should detect the entering of users with special needs.

### **Partner or Collaborative Applications**

#### **Content**

The project has access to information about users of that department. The system has to integrate that data source to obtain usefully information to identify those users. Also the system has to access the WIFI infrastructure using the available API given by the communications responsible.

#### **Motivation**

One constrain regarding the use of the Universidade do Minho's wireless infrastructure can be related to the poor access to the users information, because of privacy policy risks, or related to the lack of detailed information on the wireless users.

## **The Scope of the Work**

### **The Current Situation**

#### **Content**

Currently the Department of Informatics is using a fingerprint identification process. The fingerprint readers that only grant access to registered users are installed on the second and third floors' entrances and the classrooms on the ground-floor. Other than that all access is granted with common door keys.

#### **Motivation**

The current system always require a direct action by the users, they need to actually do something to be granted access to some kind of resource or area. Our project aims to replace the current system. The resultant product will not require any kind of direct actions by the users. Beyond that, this new automated system

will contemplate a variety of new features that will improve the performance, usability and comfort of the users compared to the current solution.

## The Scope of the Product

### Product Boundary

#### System Managers

- These users can add new “Registered Users”, temporary or not
- These users can access the log’s information generated by the system
- These users can register material and control it

#### Registered Users

- The system allows these users to access the reserved areas, generating log's that keep the timing and location of this access with that user ID. But they can not edit or remove this information.
- These users can only access the information from the logs that are related to himself, generated by the system before its movements.
- Users can not access (see, edit, remove) the information related to other registered or unregistered users.
- Users can see and edit their personal information.
- Users can request a resource. They can see this request entry however, they can not alter or remove the information stored on that entry.

#### Unregistered Users

- can not view, edit, or remove all information about the users who are registered in the system.
- the system automatically generates log's when these users access to an unauthorized area and they can not view, edit, or remove this information.
- they need to register as temporary users in order to request a resource.

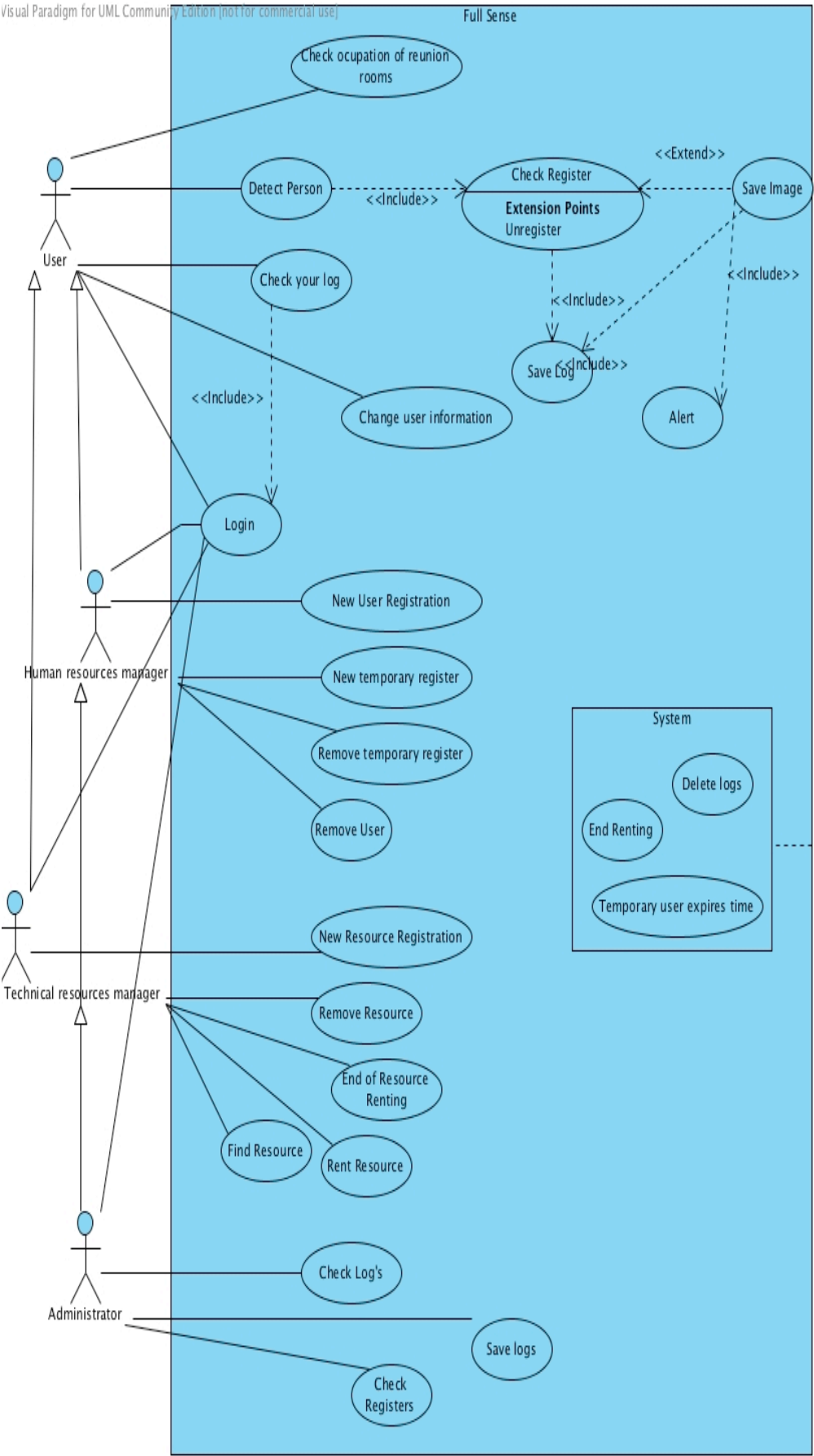
### Use Case List

#### Actor Grid

ID	Name	Related use cases
1	Human resources manager	New User Registration, New temporary register, Remove temporary register, Remove User, Login
2	User	Detect Person, Login, Check your log, Change user information, Check occupation of reunion rooms
3	Technical resources manager	New Resource Registration, Remove Resource, Rent Resource, Find Resource, Login, End of Resource Renting
4	Administrator	Check Log's, Login, Check Registers, Save logs

# Use Case Diagram

Visual Paradigm for UML Community Edition (not for commercial use)



"Sugere-se a utilização dum estereótipo <<internal>> associado aos casos de uso que representam (...) tarefas iniciadas internamente."  
- Sugestao de JMF (jmf@di.uminho.pt)

## Details



Technical resources manager



New Resource Registration

### Use Case Descriptions

Main	
Super Use Case	New Resource Registration
Author	Requirements Team
Date	10/Nov/2009 11:11:52
Brief Description	
Preconditions	Correct Login (for Technical resources manager)
Post-conditions	New resource registered
Flow of Events	<ol style="list-style-type: none"><li>1 The manager select create new resource</li><li>2 The system returns a web form</li><li>3 The manager completes the fields</li><li>4 The system saves the information</li><li>5 The system informs a new resource was created</li><li>6 The manager attach the physical tag to the resource</li></ol>
Alternative Flow of Events 4a	<ol style="list-style-type: none"><li>1 The system detects an error in the fields</li><li>2 The system returns the web form informing where are the errors</li><li>3 Returns to step 3</li></ol>



Remove Resource

### Use Case Descriptions

Main	
Super Use Case	Remove Resource
Author	Requirements Team
Date	10/Nov/2009 11:11:52
Brief Description	
Preconditions	Correct Login (for Technical resources manager), the resource must exist in the system
Post-conditions	Resource deleted

<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1      The manager selects delete resource</li> <li>2              The system returns a list of resources that match the search criteria</li> <li>3      The manager selects the resource and deletes it</li> <li>4              The system deletes the information</li> <li>5              The system informs a resource was deleted</li> <li>6      The manager removes the tag from the resource</li> </ol>
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## Rent Resource

### Use Case Descriptions

Main	
<b>Super Use Case</b>	Rent Resource
<b>Author</b>	Requirements Team
<b>Date</b>	10/Nov/2009 11:11:52
<b>Brief Description</b>	
<b>Preconditions</b>	Correct Login (for Technical resources manager), the resource must exist in the system and the user must have permissions to do so
<b>Post-conditions</b>	Resource rented
<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1      The manager selects rent resource</li> <li>2              The system returns a list of resources that match the search criteria</li> <li>3      The manager selects the resource</li> <li>4              The system informs the resource is available</li> <li>5      The manager confirms the user has permissions to rent resources</li> <li>6      The manager defines the time the resource will be rented</li> <li>7              The system informs a resource was rented</li> </ol>
<b>Alternative Flow of Events 4a</b>	<ol style="list-style-type: none"> <li>1              The system informs the resource is unavailable</li> <li>2              Return to step 2</li> </ol>



## Find Resource

### Use Case Descriptions

Main	
Super Use Case	Search Resource
Author	Requirements Team
Date	10/Nov/2009 11:11:52
Brief Description	
Preconditions	Correct Login (for Technical resources manager), the resource must exist in the system
Post-conditions	Resource located
Flow of Events	<ol style="list-style-type: none"><li>1 The manager selects search resource</li><li>2 The system returns a list of resources that match the search criteria</li><li>3 The manager selects the resource</li><li>4 The system informs about the resource location and responsible</li></ol>



## Login

### Use Case Descriptions

Main	
Super Use Case	Login
Author	Requirements Team
Date	9/Nov/2009 22:08:34
Brief Description	
Preconditions	Correct website open
Post-conditions	Login well done
Flow of Events	<ol style="list-style-type: none"><li>1 User click on the login link</li><li>2 System shows the fields to login</li><li>3 The user put your information and click Done</li><li>4 The system confirms the fields</li><li>5 The System shows to the user "Login well done"</li></ol>

<b>Alternative Flow of Events 5a</b>	
1	System shows to the user "Wrong Login"
2	Back to step 3



## End of Resource Renting

### Use Case Descriptions

Main	
<b>Super Use Case</b>	End of Resource Renting
<b>Author</b>	Requirements Team
<b>Date</b>	10/Nov/2009 16:42:10
<b>Brief Description</b>	
<b>Preconditions</b>	Correct Login (for Technical resources manager), the resource rent must exist in the system
<b>Post-conditions</b>	Rent deleted
<b>Flow of Events</b>	1 Manager receives the resource 2 Manager ends the rent 3 The System confirms the rent is over 4 The system saves a register of the resource renting to the DB



## User



## Detect Person

### Use Case Descriptions

Main	
<b>Super Use Case</b>	Detect Person
<b>Author</b>	Requirements Team
<b>Date</b>	9/Nov/2009 12:22:24
<b>Brief Description</b>	
<b>Preconditions</b>	Any person entering controlled areas
<b>Post-conditions</b>	Identify user
<b>Flow of Events</b>	1 Actor enters or leaves the controlled area 2 <b><i>Include : Check Register</i></b>



## Check Register

### Extension Points

Unregister

### Main

1.

### Main (Flow of Events)

1. The system checks if the person has a tag
2. The system checks if the tag is registered
3. The system confirms that person has permission to be there
4. Include : Save Log

### Main (Exception Flow of Evens 1a)

1. The system doesn't detect the tag
2. extended by: Save image

### Main (Exception Flow of Evens 2a)

1. The System detects the tag is not registered
2. 2 extended by: Save image

### Main (Exception Flow of Evens 3a)

1. The system detects that person doesn't have permission to be there
2. Include : Save Image

### Details

Name	Value
Level	
Complexity	
Use Case Status	
Implementation Status	
Preconditions	Someone inside a restricted area
Post-conditions	Identify registered user, Detect intruders
Author	Requirements Team
Assumptions	

### Use Case Descriptions



Main_converted	
Super Use Case	Check Register
Author	Requirements Team
Date	9/Nov/2009 11:34:26
Brief Description	
Preconditions	Someone inside a restricted area
Post-conditions	Identify registered user, Detect intruders
Flow of Events	<p>1                    The system checks if the person has a tag</p> <p>2                    The system checks if the tag is registered</p> <p>3                    The system confirms that person has permission to be there</p> <p>4        <b>Include : Save Log</b></p>
Exception Flow of Evens 1a	<p>1                    The system doesn't detect the tag</p> <p>2        <b>extended by: Save image</b></p>
Exception Flow of Evens 2a	<p>1                    The System detects the tag is not registered</p> <p>2        <b>2 extended by: Save image</b></p>
Exception Flow of Evens 3a	<p>1                    The system detects that person doesn't have permission to be there</p> <p>2        <b>Include : Save Image</b></p>



## Save Log

### Main

1. The system receives the data to be stored
2. The system save data in the data base

### Details

Name	Value
Level	
Complexity	
Use Case Status	
Implementation Status	

Preconditions	Any movement inside the department
Post-conditions	Data stored
Author	Requirements Team
Assumptions	

## Use Case Descriptions

Main	
Super Use Case	Save Log
Author	Requirements Team
Date	9/Nov/2009 11:05:21
Brief Description	
Preconditions	Any movement inside the department
Post-conditions	Data stored
Flow of Events	<ol style="list-style-type: none"> <li>1            The system receives the data to be stored</li> <li>2            The system save data in the Data Base</li> </ol>



## Check your log

## Use Case Descriptions

Main	
Super Use Case	Check your log
Author	Requirements Team
Date	9/Nov/2009 22:31:52
Brief Description	
Preconditions	Correct Website
Post-conditions	User saw your log
Flow of Events	<ol style="list-style-type: none"> <li>1        <b><i>Include : Login</i></b></li> <li>2        User click on log link</li> <li>3            The system displays Log with different filter modes (ex : day, week, month, year)</li> </ol>



## Change user information

## Use Case Descriptions

Main	
Super Use Case	Change personal information

<b>Author</b>	Requirements Team
<b>Date</b>	9/Nov/2009 22:41:09
<b>Brief Description</b>	
<b>Preconditions</b>	Login correct
<b>Post-conditions</b>	New user information
<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1 User click on Personal Information link</li> <li>2 The system displays the information</li> <li>3 The user click on Changes information</li> <li>4 The system displays the information with editing options</li> <li>5 User changes your information and confirms</li> </ol>



## Check occupation of reunion rooms

### Use Case Descriptions

Main	
<b>Super Use Case</b>	Check occupation of reunion rooms
<b>Author</b>	Nhoca
<b>Date</b>	10/11/2009 15:13:13
<b>Brief Description</b>	The user can see if a room is occupied
<b>Preconditions</b>	
<b>Post-conditions</b>	
<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1 User chooses a room</li> <li>2 System informs if the room is empty</li> </ol>
<b>Alternate Flow of Events 2a</b>	<ol style="list-style-type: none"> <li>1 System informs the room is occupied</li> <li>2 Return to step 1</li> </ol>



**Administrator**



## Check Log's

### Use Case Descriptions

**Main**

<b>Super Use Case</b>	Check logs
<b>Author</b>	Requirements Team
<b>Date</b>	10/Nov/2009 11:11:52
<b>Brief Description</b>	
<b>Preconditions</b>	Correct Login (for Administration)
<b>Post-conditions</b>	Log searched
<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1 The administrator selects to search logs</li> <li>2 The system returns a list of logs with filters (resources, users, location, time)</li> <li>3 The administrator selects the filter</li> <li>4 The system shows a list of logs</li> </ol>



## Check Registers

### Use Case Descriptions

Main	
<b>Super Use Case</b>	Check Registers
<b>Author</b>	Requirements Team
<b>Date</b>	10/Nov/2009 11:11:52
<b>Brief Description</b>	
<b>Preconditions</b>	Correct Login (for Administration), the system must have registers
<b>Post-conditions</b>	Log searched
<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1 The administrator selects to search registers (both from resources and temporary users)</li> <li>2 The system returns a list of registers with filters (resources, users, location, time)</li> <li>3 The administrator selects the filter</li> <li>4 The system shows a list of registers</li> </ol>



## Save logs

### Use Case Descriptions

Main	
<b>Super Use Case</b>	Save logs
<b>Author</b>	Requirements Team
<b>Date</b>	10/Nov/2009 11:11:52
<b>Brief Description</b>	

<b>Preconditions</b>	There must be logs in the system
<b>Post-conditions</b>	Log saved
<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1 The administrator selects to search logs</li> <li>2 The system returns a list of logs with filters (resources, users, location, time)</li> <li>3 The administrator selects the filter</li> <li>4 The system shows a list of logs</li> <li>5 The administrator chooses to save a log</li> <li>6 The system informs the log is saved</li> </ol>



**Human resources manager**

## **New User Registration**

### **Use Case Descriptions**

<b>Main</b>	
<b>Super Use Case</b>	New User Registration
<b>Author</b>	Requirements Team
<b>Date</b>	10/Nov/2009 11:11:52
<b>Brief Description</b>	
<b>Preconditions</b>	Correct Login (for Human resources manager)
<b>Post-conditions</b>	New user registered
<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1 The manager select create new user</li> <li>2 The system returns a web form</li> <li>3 The manager completes the fields the defines the user permissions</li> <li>4 The system saves the information</li> <li>5 The system informs a new user was created</li> <li>6 The manager gives the physical tag to the user</li> </ol>
<b>Alternative Flow of Events 4a</b>	<ol style="list-style-type: none"> <li>1 The system detects an error in the fields</li> <li>2 The system returns the web form informing where are the errors</li> <li>3 Returns to step 3</li> </ol>



## New temporary register

### Main (Flow of Events)

1. The manager select create new user
2. The system returns a web form
3. The manager completes the fields the defines the user permissions
4. The system saves the information
5. The system informs a new user has created
6. The manager gives the physical tag to the user

### Main (Alternative Flow of Events 4a)

1. The system detects an error in the fields
2. The system returns the web form informing where are the errors
3. Returns to step 3

### Details

Name	Value
Level	
Complexity	
Use Case Status	
Implementation Status	
Preconditions	Correct Login (for Human resources manager)
Post-conditions	New user registered
Author	Requirements Team
Assumptions	

### Use Case Descriptions

Main_converted	
Super Use Case	New temporary register
Author	Requirements Team
Date	10/Nov/2009 11:35:54
Brief Description	
Preconditions	Correct Login (for Human resources manager)
Post-conditions	New temporary user registered

<b>Flow of Events</b>	<p>1           The manager select create new temporary user</p> <p>2                   The system returns a web form</p> <p>3           The manager completes the fields the defines the user permissions</p> <p>4           The manager defines the time the new user will be registered</p> <p>5                   The system saves the information</p> <p>6                   The system informs a new temporary user was created</p> <p>7           The manager gives the physical tag to the user</p>
<b>Alternative Flow of Events 4a</b>	<p>1                   The system detects an error in the fields</p> <p>2                   The system returns the web form informing where are the errors</p> <p>3                   Returns to step 3</p>



## Remove temporary register

### Use Case Descriptions

Main	
<b>Super Use Case</b>	Remove Temporary User
<b>Author</b>	Requirements Team
<b>Date</b>	10/Nov/2009 11:11:52
<b>Brief Description</b>	
<b>Preconditions</b>	Correct Login (for Human resources manager), the temporary user must exist in the system
<b>Post-conditions</b>	User deleted

<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1      The manager receives the physical tag</li> <li>2      The manager selects delete temporary user</li> <li>3              The system returns a list of temporary users the match the search criteria</li> <li>4      The manager selects the user and deletes it</li> <li>5              The system saves a register of the temporary user to the DB</li> <li>6              The system deletes the information</li> <li>7              The system informs the temporary user was deleted</li> </ol>
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## Remove User

### Use Case Descriptions

Main	
<b>Super Use Case</b>	Remove User
<b>Author</b>	Requirements Team
<b>Date</b>	10/Nov/2009 11:11:52
<b>Brief Description</b>	
<b>Preconditions</b>	Correct Login (for Human resources manager), the user must exist in the system
<b>Post-conditions</b>	User deleted
<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1      The manager selects delete user</li> <li>2              The system returns a list of users that match the search criteria</li> <li>3      The manager selects the user and deletes it</li> <li>4              The system deletes the information</li> <li>5              The system informs a user was deleted</li> <li>6      The user gives the tag to the manager</li> </ol>



## Full Sense



## Save Image

### Use Case Descriptions

Main	
<b>Super Use Case</b>	Record Image



<b>Author</b>	Requirements Team
<b>Date</b>	9/Nov/2009 11:19:21
<b>Brief Description</b>	
<b>Preconditions</b>	Non-register person inside the restricted area
<b>Post-conditions</b>	Record image of Unregistered person and save the log
<b>Flow of Events</b>	<div> 1                    System records the person  2        <b><i>Include : Alert</i></b>  3                    System creates the new log for the intrusion  4        <b><i>Include : Save Log</i></b> </div>



## Alert

### Main

1. The system alert that someone entered a prohibited area
2. The system show image of this Unregistered person
3. responsible disconnect the warning system

### Details

Name	Value
Level	
Complexity	
Use Case Status	
Implementation Status	
Preconditions	Video camera linked
Post-conditions	Non-registered person identified
Author	FullSense
Assumptions	

### Use Case Descriptions

Main	
<b>Super Use Case</b>	Alert
<b>Author</b>	FullSense
<b>Date</b>	9/Nov/2009 10:42:22
<b>Brief Description</b>	
<b>Preconditions</b>	Video camera connected to the system
<b>Post-conditions</b>	Non-registered person identified

<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1 The system alerts that someone entered a prohibited area</li> <li>2 The system shows an image of this Unregistered person</li> <li>3 Responsible confirms he has viewed the alarm</li> </ol>
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## Delete logs

### Use Case Descriptions

Main	
<b>Super Use Case</b>	Delete logs
<b>Author</b>	Nhoca
<b>Date</b>	10/11/2009 14:58:57
<b>Brief Description</b>	The system deletes the logs from 6 to 6 months
<b>Preconditions</b>	The system must have any logs, there must be logs older than 6 months
<b>Post-conditions</b>	
<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1 months The system detects a log older than six months</li> <li>2 The system deletes it</li> </ol>



## System



N/A



## End Renting

### Use Case Descriptions

Main	
<b>Super Use Case</b>	End Renting
<b>Author</b>	Requirements Team
<b>Date</b>	10/Nov/2009 17:01:41
<b>Brief Description</b>	
<b>Preconditions</b>	The system must have rented resources
<b>Post-conditions</b>	

<b>Flow of Events</b>	1                    The System checks hourly if a resource renting is over 2                    The system does nothing
<b>Alternate Flow of Events 2a</b>	1 ended                    The system alerts the manager the renting



## Temporary user expires time

### Use Case Descriptions

Main	
<b>Super Use Case</b>	Temporary user expires time
<b>Author</b>	Requirements Team
<b>Date</b>	10/Nov/2009 17:01:41
<b>Brief Description</b>	
<b>Preconditions</b>	The system must have temporary users
<b>Post-conditions</b>	
<b>Flow of Events</b>	1                    The System checks hourly if a temporary user is out of permissions 2                    The system does nothing
<b>Alternate Flow of Events 2a</b>	1 The system alerts the manager the tag wasn't received and the temporary user loses it's permissions

## Functional and Data Requirements

### Functional Requirements

Requirement #:

**Requirement Type:** Functional Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** The system must detect and identify registered users.

**Rationale:** Grant access to restricted areas where the identified user has permissions.

**Source:** Prof. Carlos Baquero and Paulo Novais

Customer Satisfaction:  
Customer Dissatisfaction:

Requirement #:

**Requirement Type:** Functional Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** The system must provide different access levels to registered users.

**Rationale:** Some resources might be only available to a level of users.

**Source:** Prof. Paulo Novais

Customer Satisfaction:

Customer Dissatisfaction:

Requirement #:

**Requirement Type:** Funcional Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** The system must detect intruders

**Rationale:** Intruders detection is important to keep the department's safety standards

**Source:** Prof. Carlos Baquero

Customer Satisfaction:

Customer Dissatisfaction:

Requirement #:

**Requirement Type:** Funcional Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** The system must send alerts after intruders detection

**Rationale:** Alerts helps prevent and control irregular entrances in the department

**Source:** Prof. Carlos Baquero and Paulo Novais

Customer Satisfaction:

Customer Dissatisfaction:

Requirement #:

**Requirement Type:** Funcional Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** The system must capture video after detecting intruders

**Rationale:** Together with intruders detection, video-vigilance helps solving and detecting irregular situations

**Source:** Prof. Carlos Baquero and Paulo Novais

Customer Satisfaction:

Customer Dissatisfaction:

Requirement #:

**Requirement Type:** Functional Requirement

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** The system should handle material resources requested by registered users

**Rationale:** Control who is using and where are material resources.

**Source:** Prof. Paulo Novais

Customer Satisfaction:

Customer Dissatisfaction:

Requirement #:

**Requirement Type:** Functional Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** The system must notify when material resources leave an authorized area.

**Rationale:** To avoid thefts.

**Source:** Prof. Paulo Novais

Customer Satisfaction:

Customer Dissatisfaction:

Requirement #:

**Requirement Type:** Functional Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** The system must keep information on material resources location

**Rationale:** Resources locations helps personnel access them when needed together with avoiding illegal and abusive use

**Source:** Prof. Paulo Novais

Customer Satisfaction:

Customer Dissatisfaction:

Requirement #:

**Requirement Type:** Functional Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** The system must contemplate temporary personnel registers.

**Rationale:** Sometimes guests might have to access private areas.

**Source:** Prof. Carlos Baquero

Customer Satisfaction:

Customer Dissatisfaction:

Requirement #:

**Requirement Type:** Functional Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** The system must notify when a temporary register expires and remove it.

**Rationale:** Expired registers should not be granted access

**Source:** Prof. Carlos Baquero

Customer Satisfaction:

Customer Dissatisfaction:

Requirement #:

**Requirement Type:** Functional Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** The system should know the occupation frequency of material resources and who used them.

**Rationale:** Users might need to know when the resources will be available to avoid inopportune situations.

**Source:** Prof. Paulo Novais

Customer Satisfaction:

Customer Dissatisfaction:

Requirement #:

**Requirement Type:** Functional Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** The system must keep logs of all resources movements.

**Rationale:** This will enable the system to analyze historical data and develop Intelligent actions.

**Source:** Prof. Carlos Baquero and Paulo Novais

Customer Satisfaction:

Customer Dissatisfaction:

Requirement #:

**Requirement Type:** Functional Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** The system must grant full log access to the administrators.

**Rationale:** Administrators might be interested in monitoring and manage resources.

**Source:** Prof. Carlos Baquero

Customer Satisfaction:

Customer Dissatisfaction:

Requirement #:

**Requirement Type:** Functional Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** The system administrators must be able to add, remove or edit resources over the Web.

**Rationale:** There might be some new resources available. Also some of the resources might not be available anymore.

**Source:** Prof. Carlos Baquero

Customer Satisfaction:

Customer Dissatisfaction:

Requirement #:

**Requirement Type:** Functional Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** The system must provide Web access to users personal logs, although the user shouldn't be able to edit it or remove it.

**Rationale:** The users might be interested in self-monitoring for statistical purposes and it is their legal right to access their own personal info.

**Source:** Prof. Carlos Baquero

Customer Satisfaction:

Customer Dissatisfaction:

## Usability and Humanity Requirements

### Ease of Use Requirements

Requirement #:

**Requirement Type:** Usability Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** System must be ease to use to common users

**Rationale:** The real users of the product are not informatics experts so it is important that the system is easy to use by common people

**Source:** Prof. Paulo Novais  
Customer Satisfaction:  
Customer Dissatisfaction:

## Personalization and Internationalization Requirements

Requirement #:

**Requirement Type:** Internationalization Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** System User Interface should be in English

**Rationale:** English is the most common language around the world so it is important to use it for internationalization purposes.

**Source:** Prof. Paulo Novais

Customer Satisfaction:

Customer Dissatisfaction:

## Learning Requirements

Requirement #:

**Requirement Type:** Learning Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** System must be ease to learn to everyone.

**Rationale:** It might be needed to replace the current monitor. To keep the system up and running the learning process should be fast and easy.

**Source:** Prof. Paulo Novais

Customer Satisfaction:

Customer Dissatisfaction:

# Performance Requirements

## Speed and Latency Requirements

Requirement #:

**Requirement Type:** Speed Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** System must detect an authorized entry in 1 second

**Rationale:** This system's detection and identification must be fast enough so it does not interrupt the normal flow of personnel and resources

**Source:** Prof. Paulo Novais

Customer Satisfaction:

Customer Dissatisfaction:

## Precision or Accuracy Requirements

Requirement #:

**Requirement Type:** Precision Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** System must be accurate when identifying the users

**Rationale:** The incorrect identification can mislead to incorrect access granting.

**Source:** Prof. Cesar Analide.

Customer Satisfaction:

Customer Dissatisfaction:

## Reliability and Availability Requirements

Requirement #:

**Requirement Type:** Availability Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** System must be available 99.99% a year

**Rationale:** Personnel and resources movements and location must be functioning full-time

**Source:** Prof. Carlos Baquero

Customer Satisfaction:

Customer Dissatisfaction:

## Robustness or Fault-Tolerance Requirements

Requirement #:

**Requirement Type:** Robustness Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** System must be redundant.

**Rationale:** To ensure that the system is available 99.99% of the year, fault-tolerance mechanisms should be implemented. Data should be replicated to keep the system's redundancy.

**Source:** Prof. Carlos Baquero

Customer Satisfaction:

Customer Dissatisfaction:

## Capacity Requirements

Requirement #:

**Requirement Type:** Capacity Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** The default system must be capable of handling at least 500 registered users.

**Rationale:** Commonly organizations do not have more than 500 collaborators .

**Source:** Prof. Cesar Analide.

Customer Satisfaction:

Customer Dissatisfaction:

## Scalability or Extensibility Requirements

Requirement #:

**Requirement Type:** Scalability Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** System must support n sensors

**Rationale:** This system must be able to be adapted to new ambiance and infrastructures, therefore accepting different sensors networks and variables

**Source:** Prof. Carlos Baquero

Customer Satisfaction:

Customer Dissatisfaction:

Requirement #:



**Requirement Type:** Scalability Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** System's number of registered users should be able to be increased.

**Rationale:** We defined the default system to be capable of handling 500 people however some organizations have thousands of collaborators .

**Source:** Prof. Cesar Analide.

Customer Satisfaction:

Customer Dissatisfaction:

## Operational and Environmental Requirements

### Expected Physical Environment

Requirement #:

**Requirement Type:** Environmental Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** The Informatics Department must have five different identification spots.

**Rationale:** The access through the 3 entrances to the upper floors and the two entrances to the Aquarius should be monitored

**Source:** Prof. Carlos Baquero

Customer Satisfaction:

Customer Dissatisfaction:

### Requirements for Interfacing with Adjacent Systems

Requirement #:

**Requirement Type:** Interfacing Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** The system must interact if possible with the current fingerprint identification process.

**Rationale:** Its a good politic to reutilize the existent resources

**Source:** Prof. Paulo Novais

Customer Satisfaction:

Customer Dissatisfaction:

Requirement #:

**Requirement Type:** Interfacing Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** The system must interact if possible with the current WIFI communication system.

**Rationale:** Its a good politic to reutilize the existent resources

**Source:** Prof. Paulo Novais

Customer Satisfaction:

Customer Dissatisfaction:

## Maintainability and Support Requirements

## Supportability Requirements

Requirement #:

**Requirement Type:** Supportability Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** The system must have documentation support. The commonly known as "Help".

**Rationale:** Minor problems can be easily solved by the users if they have the right documentation about the product

**Source:** Prof. Cesar Analide

Customer Satisfaction:

Customer Dissatisfaction:

Requirement #:

**Requirement Type:** Supportability Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** The system must if possible communicate bigger problems to the support team via e-mail.

**Rationale:** Bigger problems and bugs that can not be solved by common users should be redirect as fast as possible to the support team.

**Source:** Prof. Cesar Analide

Customer Satisfaction:

Customer Dissatisfaction

## Security Requirements

### Access Requirements

Requirement #:

**Requirement Type:** Access Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** The system must have a web authentication process (user name/ password).

**Rationale:** The users have different access levels and should only be able to edit they personal information.

**Source:** Prof. Carlos Baquero

Customer Satisfaction:

Customer Dissatisfaction:

### Privacy Requirements

Requirement #:

**Requirement Type:** Privacy Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** The system must delete logs older than six months.

**Rationale:** It would not be correct to keep information about users that are no longer using the system. Six months seems enough to extract some knowledge patterns without compromise users privacy.

**Source:** Prof. Francisco Andrade

Customer Satisfaction:

Customer Dissatisfaction:

## Immunity Requirements

Requirement #:

**Requirement Type:** Immunity Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** The system if possible should use encrypted data.

**Rationale:** This would create immunity to outside attacks and help preventing users personal information.

**Source:** Prof. Carlos Baquero

Customer Satisfaction:

Customer Dissatisfaction:

## Legal Requirements

### Compliance Requirements

### Standards Requirements

Requirement #:

**Requirement Type:** Legal Requirement.

**Event/use case #:** List of Events / Use cases that need this requirement

**Description:** Personnel and users must be warned they're being monitored and filmed

**Rationale:** It is a legal obligation for the system's responsible to keep this systems signaled: the users must know the conditions of use

**Source:** Prof. Francisco Andrade

Customer Satisfaction:

Customer Dissatisfaction:

## Open Issues

### Content

- The system should be pro-active.
- The idea to create a social network.

### Motivation

With a pro-active system you can anticipate the actions taken by the system to facilitate the tasks of users. e.g. If the user of the system is a physically handicapped person, the system can recognize him and be able to make decisions in order to facilitate the day-to-day life of these people, such as calling the elevator before they get close to this, etc.

The idea of social networking appears to give greater value to the online service, and allow users to communicate with each other or even know where their "friends" are.