

**Interacção Pessoa-Máquina**

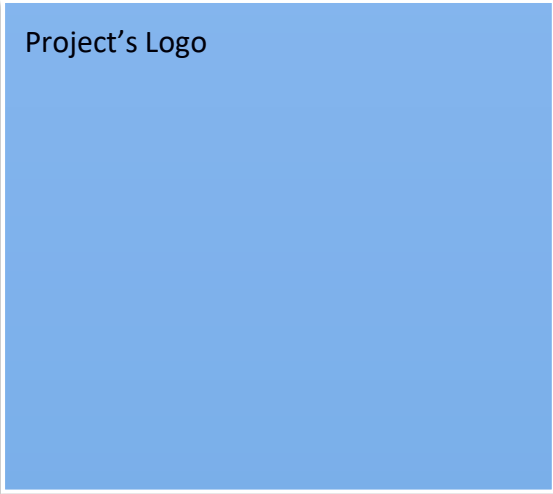
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# SmartDomotic

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## Stage 2: User and Task Analysis

Project's Logo



**Realizado por:**

50870, Daniela Santos  
51171, David Mealha  
49507, Vladislav Pinzhuro

**Lab class Nº 4**

**Professor:**  
Teresa Romão

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## 1 Problem

This project aims to resolve a real world problem. Nowadays, with all the smart gadgets and easy access to the Internet, the world is pretty much connected to everything and everywhere. However, our houses are still an exception to this. For example, we do not have a way to know whether we let the oven on or the door open.

Therefore, the goal of this prototype is to solve this problem by creating a web application that would function as an interface for a home automation system capable of controlling all the smart devices in our homes.

The home automation system may have many different devices connected to it, with every room being able to have its own set of devices. For example, bathroom and kitchen would have their own and distinct sets of devices.

## 2 Users

Assuming that parents buy this application and want their children to use it without being able to change the plan of the house and edit the existing equipment, we propose the following two types of users: a common user (for example, a child) who is only able to change the state of an existing equipment, on existing divisions and floors; and a second type of user that corresponds to a more privileged user (for example, a parent) who can create, delete, and edit divisions, floors and equipment, and perform other advanced functions, such as linking the various types of equipment between each other (for example, linking a sensor to a door).

### 3 Tasks

ID	Task1
Task	Add/Remove floor
Goal	Add/Remove a floor to/from the automation system.
Pre-Conditions	-
Sub-tasks	-
Exceptions	Addition: - Cannot attribute an already existing name to the new floor.
Other	Low frequency of use. Normally used only during the plant creation and modification

ID	Task2
Task	Add division
Goal	Adding a new division to an existing floor.
Pre-Conditions	The target floor must exist and be selected.
Sub-tasks	- Select the new division option; - Draw the division.
Exceptions	Cannot attribute an already existing name to the new division.
Other	Low frequency of use. Normally used only during the plant creation and modification.

ID	Task3
Task	Remove division
Goal	Remove an existing division from an existing floor.
Pre-Conditions	The floor in question must exist and be selected.
Sub-tasks	- Select the division; - Select the remove option.
Exceptions	
Other	Low frequency of use. Normally used only during the plant creation and modification.

ID	Task4
Task	Edit division
Goal	Edit an existing division on an existing floor.
Pre-Conditions	The floor containing the division must be selected.
Sub-tasks	<ul style="list-style-type: none"> <li>- Select the division;</li> <li>- Adjust the size of the division.</li> </ul>
Exceptions	
Other	Low frequency of use. Normally used only during the plant creation and modification.

ID	Task5
Task	Add equipment
Goal	Add new equipment to an existing division.
Pre-Conditions	The floor containing the target division must be selected and the target division must exist.
Sub-tasks	<ul style="list-style-type: none"> <li>- Select the desired equipment;</li> <li>- Drag the equipment into the desired division.</li> </ul>
Exceptions	Equipment must be added inside a division.
Other	Moderate frequency of use. Used whenever a new equipment is bought or relocated.

ID	Task6
Task	Remove equipment
Goal	Remove an existing equipment from an existing division.
Pre-Conditions	The floor containing the target division must be selected and the target division must exist.
Sub-tasks	<ul style="list-style-type: none"> <li>- Select the equipment to be removed;</li> <li>- Select the remove option.</li> </ul>
Exceptions	
Other	Moderate frequency of use. Used whenever a new equipment is sold, relocated, or broken.

ID	Task7
Task	Connect/Disconnect equipment to another equipment
Goal	Connect/Disconnect an existing equipment to another existing equipment on the same floor.
Pre-Conditions	The floor containing the required equipment must be selected and the division containing the equipment must exist.
Sub-tasks	<ul style="list-style-type: none"> <li>- Select the equipment;</li> </ul> Connect: <ul style="list-style-type: none"> <li>- Connect to an equipment from the connectable equipment list.</li> </ul> Disconnect: <ul style="list-style-type: none"> <li>- Remove a connected equipment from the connected equipment list.</li> </ul>
Exceptions	
Other	Moderate frequency of use.

ID	Task8
Task	Schedule equipment
Goal	Scheduling the equipment to work on the given interval of time
Pre-Conditions	The floor containing the required equipment must be selected and the division containing the equipment must exist.
Sub-tasks	<ul style="list-style-type: none"> <li>- Select the desired equipment;</li> <li>- Select the scheduling option;</li> <li>- Schedule the working hours according to your preferences;</li> </ul>
Exceptions	
Other	Moderate frequency of use;

ID	Task9
Task	Change the temperature of an air conditioner
Goal	Change the temperature of an existing air conditioner.
Pre-Conditions	The floor containing the required equipment must be selected and the division containing the equipment must exist.
Sub-tasks	<ul style="list-style-type: none"> <li>- Select the desired air conditioner;</li> <li>- Modify the current temperature;</li> </ul>
Exceptions	
Other	High frequency of use;

ID	Task10
Task	Change the state of an on/off equipment
Goal	Changing the state of a lamp, door, or any other equipment that has only two states (on/off, open/closed).
Pre-Conditions	The floor containing the required equipment must be selected and the division containing the equipment must exist.
Sub-tasks	<ul style="list-style-type: none"> <li>- Select the desired equipment;</li> <li>- Toggle the state;</li> </ul>
Exceptions	
Other	High frequency of use;

ID	Task11
Task	Change the position of a window blind
Goal	Set the window blind to the desired position.
Pre-Conditions	The floor containing the required equipment must be selected and the division containing the equipment must exist.
Sub-tasks	<ul style="list-style-type: none"> <li>- Select the desired window blind;</li> <li>- Set the blind to the desired position;</li> </ul>
Exceptions	
Other	High frequency of use;

## 4 Task Scenarios

1. Adding my house with all the existing equipment to the automation system.
  - 1.1. I decided to add my 2-floor house, with 5 divisions on the 1st floor and 3 divisions on the 2nd floor, to the automation system. I opened the application, added the floors to the system, and finally I had to configure each floor.
  - 1.2. Now I needed to add the divisions, I proceeded to represent in the system each division according to the paper plant. I repeated the same process for each floor, in this case adding 5 division to the first floor and 3 to the second one.
  - 1.3. After having the complete plant added to the system, I proceeded to add all of my equipment to their appropriate divisions. I started by placing 2 air conditioners, 2 doors with electric lockers, 3 electric window blinds, and a TV in my living room. Then I proceeded to filling all other divisions with the appropriate equipment.
2. Toggling the first floor kitchen lights
3. I decided to set the air conditioner in my bedroom on the 2nd floor to turn on every morning at 8 o'clock, at 22 degrees Celsius.

On the next day, I woke up a little bit cold and realized that I should set the room temperature higher, to 25 degrees.
4. In order to allow my children to access the application, I had to configure a type of user just for them, just allowing them to change the state of some equipment. In my case I will just let them use the lamps, the TV and the air conditioner.

Finally, I set a password to that role, and now they are allowed to enter in the automation system and make the changes they are allowed to.