

Extract product line from Smart Home specifications

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1 Scenario SC01

1.1 Description:

Register inhabitant - This scenario allows the home owner to register new inhabitants. In this way, the policies for getting access in the home are applied.

1.2 Flow of events

Code	Feature	User Action	System Response
SC01.1	-	The home owner selects the register inhabitant option in the security configuration menu.	The inhabitant personal form is displayed.
SC01.2	-	The home owner selects the proceed option.	The system asks the home owner her configuration password.
SC01.3	-	The home owner fills in the configuration password and selects the proceed option.	The system register the new inhabitant, allowing she to get access to the smart house.

2 Scenario SC02

2.1 Description:

Request access to the smart home - This scenario allows a registered inhabitant to enter into the house.

2.2 Flow of events

Code	Feature	User Action	System Response
SC02.1	-	-	The system displays the message of successful authorization.
SC02.2	-	-	The system opens the front door and register the occurrence.
SC02.3	-	-	After timeToClose, the front door is closed.

3 Scenario SC03

3.1 Description:

Guest request access to the smart home. - This scenario allows a guest to enter into the house, but there is no resident there. This scenario is useful, for example, when the home owner family is traveling but an employee, a relative or a closer friend needs access to the house.

3.2 Flow of events

Code	Feature	User Action	System Response
SC03.2	-	The guest fills in the requested information.	The system takes a guest photograph and sends one message to the home owner mobile device.
SC03.3	-	-	The system asks for the guest to wait a few minutes.
SC03.4	-	The home sends an authorization allowing the guest to enter into the house.	The system receives the authorization message.
SC03.5	-	-	The system displays the message of successful authorization.
SC03.6	-	-	The system opens the front door and register the occurrence.
SC03.7	-	-	After thirty seconds, the front door is closed.
SC03.1	-	The guest request access to the home at the main entrance.	The system asks the guest name and the reason for requesting access to the house.

4 Scenario SC04

4.1 Description:

Detect an attempt to intrude the house. - This scenario describes the behavior that is triggered when an event of attempting to intrude the house is detected.

4.2 Flow of events

Code	Feature	User Action	System Response
SC04.1	-	The presence sensor identifies that someone (or something) is trying to intrude into the smart home. This might be deduced by observing any suspect event (forcing or braking) in the external doors and windows	The system emits the configured internal sound alarm.
SC04.2	-	-	The system emits the configured internal sound alarm.

5 Scenario SC05

5.1 Description:

Detect smoke or high variances of temperature inside the smart home - This scenario describes the behavior that have to be triggered when an event that might characterizes fire or smoke in the smart home is detected.

5.2 Flow of events

Code	Feature	User Action	System Response
SC05.1	-	The fire sensor identifies a possible fire occurrence (based on smoke or temperature variation).	The system emits the configured internal sound alarm.
SC05.2	-	-	The system places a call to the fire guard department.

6 Scenario ADV.01.1

6.1 Description:

Advice asociado a feature Access Controller -*i* Password

6.2 Pointcut:

SC01.1

6.3 Flow of events

Code	Feature	User Action	System Response
ADV.01.1.STEP1		The home owner fills in the inhabitant personal form and selects the proceed option.	The system asks for the inhabitant password (and password confirmation) that allows her to get access to the home.
ADV.01.1.STEP2		The new inhabitant fills in the password (and confirmation password) for getting access to the home.	The system verifies that the password and confirmation password are equal. The system asks the home owner to select the proceed option.

7 Scenario ADV.01.2

7.1 Description:

Advice associated to the feature Access Controller -¿ FingerPrint

7.2 Pointcut:

SC01.1

7.3 Flow of events

Code	Feature	User Action	System Response
ADV.01.2.STEP1		The home owner fills in the inhabitant personal form and selects the proceed option.	The system asks the inhabitant to capture her fingerprint.
ADV.01.2.STEP2		The new inhabitant put her finger in the fingerprint reader.	The system captures the mark of the inhabitant fingerprint and asks the home owner to proceed.

8 Scenario ADV.02.1

8.1 Description:

Advice associated to the feature Access Controller -¿ Password

8.2 Pointcut:

SC02.1

8.3 Flow of events

Code	Feature	User Action	System Response
ADV.02.1.STEP1		The inhabitant request access to the home at the main entrance.	The system requests to the user to pass the smart card.
ADV.02.1.STEP2		The inhabitant inserts the smart card into the card reader.	The system asks the inhabitant's password, in order to authorize her access to the smart home.
ADV.02.1.STEP3		The inhabitant informs her password.	The system verifies that the password is valid for the registered inhabitant.

9 Scenario ADV.02.2

9.1 Description:

Advice associated to the feature Access Controller -j Fingerprint

9.2 Pointcut:

SC02.1

9.3 Flow of events

Code	Feature	User Action	System Response
ADV.02.2.STEP1		The inhabitant request access to the home at the main entrance.	The system asks the inhabitant to capture her fingerprint.
ADV.02.2.STEP2		The new inhabitant put her finger in the fingerprint reader.	The system recognizes the fingerprint impression.

10 Scenario ADV.04.1

10.1 Description:

Advice associated to the feature Actions -j Lock Doors

10.2 Pointcut:

SC04.2

10.3 Flow of events

Code	Feature	User Action	System Response
ADV.04.1.STEP1		-	ADV.04.1

11 Scenario ADV.04.2

11.1 Description:

Advice associated to the feature Action -;Switch the lights on

11.2 Pointcut:

ADV.04.1

11.3 Flow of events

Code	Feature	User Action	System Response
ADV.04.2.STEP1		-	The system turns on the external and internal lights.

12 Configuration Knowledge

Expression	Transformations
Switch the lights on	evaluate advice ADV.04.2
Lock Doors	evaluate advice ADV.04.1
Fingerprint	evaluate advice ADV.02.2
Password	evaluate advice ADV.02.1
Time to Close	bind parameter timeToClose to Time to Close
Guest Authorization	select scenario SC03
Fire Detection	select scenario SC05
Fingerprint	evaluate advice ADV.01.2
Password	evaluate advice ADV.01.1