

Extract product line from Smart Home specifications

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1 Scenario SC01

1.1 Description:

This scenario allows the home owner to register new inhabitants. In this way, the policies forgetting 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:

This scenario allows a registered inhabitant to enter into the house.

2.2 Flow of events

Code	Feature	User Action	System Response
SC02.1	-	none	The system displays the message of successful authorization.
SC02.2	-	none	The system opens the front door and register the occurrence.

3 Scenario SC03

3.1 Description:

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
SC03.1	-	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.
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	-	none	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	-	none	The system displays the message of successful authorization.
SC03.6	-	none	The system opens the front door and register the occurrence.
SC03.7	-	none	After thirty seconds, the front door is closed.

4 Scenario SC04

4.1 Description:

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	-	none	The system places a call to the police department.

5 Scenario SC05

5.1 Description:

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	-	none	The system places a call to the fire guard department.

6 Scenario ADV01

6.1 Description:

Lock Doors

6.2 Pointcut:

SC04.2

6.3 Flow of events

Code	Feature	User Action	System Response
ADV01.1	-	none	The system locks the access to the bedrooms.

7 Scenario ADV02

7.1 Description:

Switch the lights on

7.2 Pointcut:

SC04.2

7.3 Flow of events

Code	Feature	User Action	System Response
ADV02.1	-	none	The system turns on the external and internal lights.

8 Scenario ADV03

8.1 Description:

Password

8.2 Pointcut:

SC01.1

8.3 Flow of events

Code	Feature	User Action	System Response
ADV03.1	-	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.
ADV03.2	-	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.

9 Scenario ADV04

9.1 Description:

Fingerprint

9.2 Pointcut:

SC01.1

9.3 Flow of events

Code	Feature	User Action	System Response
ADV04.1	-	The home owner fills in the inhabitant personal form and selects the proceed option.	The system asks the inhabitant to capture her fingerprint.
ADV04.2	-	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.

10 Scenario ADV05

10.1 Description:

thirty seconds

10.2 Pointcut:

SC02.2

10.3 Flow of events

Code	Feature	User Action	System Response
ADV05.1	-	none	After thirty seconds, the front door is closed.

11 Scenario ADV06

11.1 Description:

sixty seconds

11.2 Pointcut:

SC02.2

11.3 Flow of events

Code	Feature	User Action	System Response
ADV06.1	-	none	After sixty seconds, the front door is closed.

12 Scenario ADV07

12.1 Description:

Password

12.2 Pointcut:

SC02.1

12.3 Flow of events

Code	Feature	User Action	System Response
ADV07.1	-	The inhabitant request access to the home at the main entrance.	The system requests to the user to pass the smart card.
ADV07.2	-	The inhabitant inserts the smart card into the card reader.	The system asks the inhabitants password, in order to authorize her access to the smart home.
ADV07.3	-	The inhabitant informs her password.	The system verifies that the password is valid for the registered inhabitant.

13 Scenario ADV08

13.1 Description:

Fingerprint

13.2 Pointcut:

SC02.1

13.3 Flow of events

Code	Feature	User Action	System Response
ADV08.1	-	The inhabitant request access to the home at the main entrance.	The system asks the inhabitant to capture her fingerprint.
ADV08.2	-	The new inhabitant put her finger in the fingerprint reader.	The system recognizes the fingerprint impression.

14 Configuration Knowledge

Expression	Transformations
And (Inhabitant Authorization, Fingerprint)	evaluate advice ADV08
And (Inhabitant Authorization, Password)	evaluate advice ADV07
And (Inhabitant Authorization, sixty seconds)	evaluate advice ADV06
And (Inhabitant Authorization, thirty seconds)	evaluate advice ADV05
Inhabitant Authorization	select scenario SC02
And (Register Inhabitant, Fingerprint)	evaluate advice ADV04
And (Register Inhabitant, Password)	evaluate advice ADV03
And (Intrusion Detection, Place a Phone Call, Switch the lights on)	evaluate advice ADV02
And (Intrusion Detection, Place a Phone Call, Lock Doors)	evaluate advice ADV01
Register Inhabitant	select scenario SC01
And (Intrusion Detection, Place a Phone Call)	select scenario SC04
And (Guest Authorization, thirty seconds)	select scenario SC03
And (Fire Detection, Emit Sound Alarm, Place a Phone Call)	select scenario SC05