

# 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 for getting access in the home are applied.

### 1.2 Flow of events

Code	Feature	User Action	System Response
SCO1.01	-	The home owner selects the register inhabitant option in the security configuration menu.	The inhabitant personal form is displayed.
SCO1.04	-	The home owner selects the proceed option.	The system asks the home owner her configuration password.
SCO1.05	-	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
SC02.04	-	-	The system displays the message of successful authorization.
SC02.05	-	-	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
SC03.01	-	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.
SC03.02	-	The guest fills in the requested information.	The system takes a guest photograph and sends one message to the home owner mobile device.
SC03.03	-	-	The system asks for the guest to wait a few minutes.
SC03.04	-	The home sends an authorization allowing the guest to enter into the house.	The system receives the authorization message.
SC03.05	-	-	The system displays the message of successful authorization.
SC03.06	-	-	The system opens the front door and register the occurrence.
SC03.07	-	-	After $\text{timeToClose}$ , 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
SC04.01	-	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.
SC04.02	-	-	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
SC05.01	-	The fire sensor identifies a possible fire occurrence (based on smoke or temperature variation).	The system emits the configured internal sound alarm.
SC05.02	-	-	The system places a call to the fire guard department.

## 6 Scenario SC02.01-ADV-FING

### 6.1 Description:

Access Controller for Fingerprint

### 6.2 Pointcut:

SC02.04

### 6.3 Flow of events

Code	Feature	User Action	System Response
SC02.01(B)	-	The inhabitant request access to the home at the main entrance.	The system asks the inhabitant to capture her fingerprint.
SC02.02(B)	-	The new inhabitant put her finger in the fingerprint reader.	The system recognizes the fingerprint impression.

## 7 Scenario SC02.01-ADV-PWD

### 7.1 Description:

Access Controller for Password

### 7.2 Pointcut:

SC02.04

### 7.3 Flow of events

Code	Feature	User Action	System Response
SC02.01(A)	-	The inhabitant request access to the home at the main entrance.	The system requests to the user to pass the smart card.
SC02.02(A)	-	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.
SC02.03(A)	-	The inhabitant informs her password.	The system verifies that the password is valid for the registered inhabitant.

## 8 Scenario SC04.01-ADV-LIGHTON

### 8.1 Description:

Securyt  $\dot{}$  Action  $\dot{}$  Light On

### 8.2 Pointcut:

SC04.03(a)

### 8.3 Flow of events

Code	Feature	User Action	System Response
SC04.04(A)	-	-	The system turns on the external and internal lights.

## 9 Scenario SC04.01-ADV-LOCKDOORS

### 9.1 Description:

Securyt  $\dot{}$  Action  $\dot{}$  Lock Door

### 9.2 Pointcut:

SC04.02

### 9.3 Flow of events

Code	Feature	User Action	System Response
SC04.03(A)	-	-	The system locks the access to the bedrooms.

## 10 Scenario SCO1.01-ADV-FING

### 10.1 Description:

Access Controller for Fingerprint

### 10.2 Pointcut:

SCO1.01

### 10.3 Flow of events

Code	Feature	User Action	System Response
SCO1.02(B)	-	The home owner fills in the inhabitant personal form and selects the proceed option.	The system asks the inhabitant to capture her fingerprint.
SCO1.03(B)	-	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.

## 11 Scenario SCO1.01-ADV-PWD

### 11.1 Description:

Access Controller for password

### 11.2 Pointcut:

SCO1.01

### 11.3 Flow of events

Code	Feature	User Action	System Response
SCO1.02(A)	-	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.
SCO1.03(A)	-	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.

## 12 Configuration Knowledge

Expression	Transformations
SwitchTheLightsOn	evaluat advice SC04.01-ADV-LightOn
TimeToClose	bind parameter TimeToClose
Password	evaluat advice SC01.01-ADV-PWD, SC02.01-ADV-PWD
LockDoor	evaluat advice SC04.01-ADV-LockDoors
FireDetection	select scanario SC05
Fingerprint	evaluat advice SC01.01-ADV-FING, SC02.01-ADV-FING
SmartHome	select scanario SC01,SC02,SC04
GuestAuthorization	select scanario SC03