

## TASK 1:

Student ID: 201299092

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### Use Case Description:

<b>ID</b>	<b>UC1</b>
<b>Name</b>	<b>Remote Authentication</b>
<b>Description</b>	<b>Authenticate the remoted user which use remote device (Webpage and Mobile App)</b>
<b>Pre-conditions</b>	<ul style="list-style-type: none"> <li>• User must in the login-webpage or already download the mobile application.</li> <li>• User want to operate the system remotely.</li> </ul>
<b>Event flow</b>	<ol style="list-style-type: none"> <li>1. User enter account name and password to authenticate.</li> <li>2. If it is not correct, ask user re-enter.</li> </ol>
<b>Post-condition</b>	<b>User is marked “authenticated”</b>
<b>Includes</b>	
<b>Extensions</b>	<b>UC2 “Authenticate User”</b>
<b>Triggers</b>	<b>UC2 require remotely authenticated service</b>

<b>ID</b>	<b>UC2</b>
<b>Name</b>	<b>Authenticate User</b>
<b>Description</b>	<b>User is authenticated by the system</b>
<b>Pre-conditions</b>	<ul style="list-style-type: none"> <li>• User use at least one kinds of user interface (Mobile App, Webpage or Key Pad)</li> <li>• User want to operate the system.</li> </ul>
<b>Event flow</b>	<ol style="list-style-type: none"> <li>1. If user already authenticate, exit this use case.</li> <li>2. If user use remote device, move to UC1</li> <li>3. User enter “user code” to authenticate.</li> <li>4. If it is not correct, ask user re-enter.</li> </ol>
<b>Post-condition</b>	<b>User is marked authenticated</b>
<b>Includes</b>	<b>UC3 “Change Setting”, UC4 “Stop Alarm”</b>
<b>Extensions</b>	<b>UC1</b>
<b>Triggers</b>	<b>Require authenticated service and user is not authenticated</b>

<b>ID</b>	<b>UC3</b>
<b>Name</b>	<b>Change Setting</b>
<b>Description</b>	<b>Allow user to change system setting</b>
<b>Pre-conditions</b>	<ul style="list-style-type: none"> <li>• User want to change the set of system.</li> </ul>
<b>Event flow</b>	<ol style="list-style-type: none"> <li>1. Include UC 2.</li> <li>2. Show user all the possible operation.</li> <li>3. UC5, if user want to set enable time for a burglar sensor.</li> <li>4. UC6, if user want to set disable time for a burglar sensor.</li> <li>5. UC7, if user want to make a sensor enable.</li> <li>6. UC8, if user want to make a sensor disable.</li> <li>7. UC9, if user want to set a disable and enable time for a burglar function.</li> <li>8. UC10, if user want to set burglar function.</li> <li>9. Response user success or not.</li> </ol>
<b>Post-condition</b>	User change one of system setting.
<b>Includes</b>	UC2
<b>Extensions</b>	UC5 "Set Enable Time", UC6 "Set Disable Time", UC7 "Immediate Disable Sensor", UC8 "Immediate Enable Sensor", UC9 "Timed Burglar Alarm Function", UC10 "Set Burglar Function"
<b>Triggers</b>	User has select to change the set of system.

<b>ID</b>	<b>UC4</b>
<b>Name</b>	<b>Stop alarm</b>
<b>Description</b>	<b>Allow user to reset the one of alarm function to stop alarm</b>
<b>Pre-conditions</b>	<ul style="list-style-type: none"> <li>• There is at least one alarm is activated or will be activated.</li> <li>• User want to stop the alarm.</li> </ul>
<b>Event flow</b>	<ol style="list-style-type: none"> <li>1. Include UC 2.</li> <li>2. Show user which alarm is activated or will be activated</li> <li>3. UC11, if user want to reset Floor Alarm Function</li> <li>4. UC12, if user want to reset Fire Alarm Function</li> <li>5. UC13, if user want to reset Burglar Alarm Function</li> <li>6. Response user success or not.</li> </ol>
<b>Post-condition</b>	User change one of system setting.
<b>Includes</b>	UC2
<b>Extensions</b>	UC11 "Reset Floor Alarm Function", UC12 "Reset Fire Alarm Function", UC13 "Reset Burglar Alarm Function"
<b>Triggers</b>	User has select to change the set of system.

<b>ID</b>	<b>UC5</b>
<b>Name</b>	<b>Set Enable Time</b>
<b>Description</b>	<b>Allow user can set enable time for Burglar Sensor</b>
<b>Pre-conditions</b>	<ul style="list-style-type: none"> <li>At least one Burglar sensor disable.</li> </ul>
<b>Event flow</b>	<ol style="list-style-type: none"> <li>User select one of valid burglar sensor.</li> <li>Ask re-enter, if is not valid sensor</li> <li>User set the enable-time for selected sensor.</li> <li>Ask re-enter, if it is not valid sensor</li> <li>System start timing</li> <li>Enable pointed sensor, if time up</li> </ol>
<b>Post-condition</b>	<b>One of the burglar sensor is set enable-time. While time up, system enable the sensor</b>
<b>Includes</b>	<b>None</b>
<b>Extensions</b>	<b>None</b>
<b>Triggers</b>	<b>User has a choice to set enable time for one of a burglar sensor</b>

<b>ID</b>	<b>UC6</b>
<b>Name</b>	<b>Set Disable Time</b>
<b>Description</b>	<b>Allow user can set disable time for Burglar Sensor</b>
<b>Pre-conditions</b>	<ul style="list-style-type: none"> <li>At least one Burglar sensor enable</li> </ul>
<b>Event flow</b>	<ol style="list-style-type: none"> <li>User select one of valid burglar sensor.</li> <li>Ask re-enter, if is not valid sensor</li> <li>User set the disable-time for selected sensor.</li> <li>Ask re-enter, if it is not valid time.</li> <li>System start timing</li> </ol>
<b>Post-condition</b>	<b>One of the burglar sensor is set disable-time. While time up, system disable the sensor</b>
<b>Includes</b>	<b>None</b>
<b>Extensions</b>	<b>None</b>
<b>Triggers</b>	<b>User has a choice to set open-time for one of a burglar sensor</b>

<b>ID</b>	<b>UC7</b>
<b>Name</b>	<b>Immediate Enable Sensor</b>
<b>Description</b>	<b>Allow user can make a sensor be enable immediately.</b>
<b>Pre-conditions</b>	<ul style="list-style-type: none"> <li>At least one sensor disable</li> </ul>
<b>Event flow</b>	<ol style="list-style-type: none"> <li>User select one of valid burglar sensor</li> <li>Ask re-enter, if is not valid sensor</li> <li>System enable pointed sensor</li> </ol>
<b>Post-condition</b>	<b>Pointed sensor enable</b>
<b>Includes</b>	<b>None</b>
<b>Extensions</b>	<b>None</b>
<b>Triggers</b>	<b>User has a choice to make a sensor enable</b>

<b>ID</b>	<b>UC8</b>
<b>Name</b>	<b>Immediate disable Sensor</b>
<b>Description</b>	<b>Allow user can make a sensor be disable immediately.</b>
<b>Pre-conditions</b>	<ul style="list-style-type: none"> <li>At least one sensor enable</li> </ul>
<b>Event flow</b>	<ol style="list-style-type: none"> <li>User select one of valid burglar sensor</li> <li>Ask re-enter, if is not valid sensor</li> <li>System disable pointed sensor</li> </ol>
<b>Post-condition</b>	<b>Pointed sensor disable</b>
<b>Includes</b>	<b>None</b>
<b>Extensions</b>	<b>None</b>
<b>Triggers</b>	<b>User has a choice to make a sensor disable</b>

<b>ID</b>	<b>UC9</b>
<b>Name</b>	<b>Timed Burglar Alarm Function</b>
<b>Description</b>	<b>Allow user can set a time to make the Burglar-Alarm function be armed or disarmed.</b>
<b>Pre-conditions</b>	<b>System in service</b>
<b>Event flow</b>	<ol style="list-style-type: none"> <li>1. User select a valid open-time and close-time</li> <li>2. Ask re-enter, if it is not valid time</li> <li>3. Keep period which is set by user</li> <li>4. Burglar alarm function enable or disable according to this period.</li> </ol>
<b>Post-condition</b>	<b>One period is set on for the burglar-alarm function. System make burglar alarm function enable and disable according to this setting</b>
<b>Includes</b>	<b>None</b>
<b>Extensions</b>	<b>None</b>
<b>Triggers</b>	<b>User has a choice to set enable and disable time for burglar-alarm function</b>

<b>ID</b>	<b>UC10</b>
<b>Name</b>	<b>Set Burglar Function</b>
<b>Description</b>	<b>Allow user can set amount of time to reset the system before the burglar alarm is sounded and whether call the police or not.</b>
<b>Pre-conditions</b>	<b>System in service</b>
<b>Event flow</b>	<ol style="list-style-type: none"> <li>1. User select amount of time to reset the system before the burglar alarm is sounded</li> <li>2. Ask re-enter, if it is not valid time</li> <li>3. Keep the time which is set by user</li> <li>4. User decide whether call the police or not</li> <li>5. Keep setting</li> </ol>
<b>Post-condition</b>	<b>Use set amount of time to reset the system before the burglar alarm is sounded and set whether call the police or not.</b>
<b>Includes</b>	<b>None</b>
<b>Extensions</b>	<b>None</b>
<b>Triggers</b>	<b>User has a choice to set enable and disable time for burglar-alarm function</b>

<b>ID</b>	<b>UC11</b>
<b>Name</b>	<b>Reset Fire-Alarm Function</b>
<b>Description</b>	<b>Allow user to reset fire-alarm function in system.</b>
<b>Pre-conditions</b>	<ul style="list-style-type: none"> <li>• System in serve</li> <li>• Fire-Alarm is activated</li> </ul>
<b>Event flow</b>	<ol style="list-style-type: none"> <li>1. Ask user to make sure whether or not need to reset the fire-alarm function.</li> <li>2. Reset the fire-alarm function</li> </ol>
<b>Post-condition</b>	<b>The fire-alarm function is reset. Fire alarm stop</b>
<b>Includes</b>	<b>None</b>
<b>Extensions</b>	<b>None</b>
<b>Triggers</b>	<b>User has a choice to reset the fire-alarm function</b>

<b>ID</b>	<b>UC12</b>
<b>Name</b>	<b>Reset Burglar Alarm Function</b>
<b>Description</b>	<b>Allow user to reset burglar-alarm function in system.</b>
<b>Pre-conditions</b>	<ul style="list-style-type: none"> <li>• System in serve</li> <li>• Burglar-Alarm is activated or will be activated</li> </ul>
<b>Event flow</b>	<ol style="list-style-type: none"> <li>1. Ask user to make sure whether or not need to reset burglar-alarm function.</li> <li>2. Reset the burglar-alarm function</li> </ol>
<b>Post-condition</b>	<b>The burglar-alarm function is reset. Burglar alarm stop.</b>
<b>Includes</b>	<b>UC2</b>
<b>Extensions</b>	<b>None</b>
<b>Triggers</b>	<b>User has a choice to reset the burglar-alarm function</b>

<b>ID</b>	<b>UC13</b>
<b>Name</b>	<b>Reset Floor-Alarm Function</b>
<b>Description</b>	<b>Allow user to reset floor-alarm function in system.</b>
<b>Pre-conditions</b>	<ul style="list-style-type: none"> <li>• <b>System in serve</b></li> <li>• <b>Floor-Alarm is activated</b></li> </ul>
<b>Event flow</b>	<ol style="list-style-type: none"> <li><b>1. Ask user to make sure whether or not need to reset floor-alarm function.</b></li> <li><b>2. Reset the floor-alarm function</b></li> </ol>
<b>Post-condition</b>	<b>The floor-alarm function is reset. Floor alarm stop.</b>
<b>Includes</b>	<b>UC2</b>
<b>Extensions</b>	<b>None</b>
<b>Triggers</b>	<b>User has a choice to reset the floor-alarm function</b>

<b>ID</b>	<b>UC14</b>
<b>Name</b>	<b>Call Fire Bridge</b>
<b>Description</b>	<b>System makes sure fire-alarm and call the fire-bridge</b>
<b>Pre-conditions</b>	<ul style="list-style-type: none"> <li>• <b>Fire-alarm is active.</b></li> </ul>
<b>Event flow</b>	<ol style="list-style-type: none"> <li><b>1. Report this emerging condition to relative fire-bridge system.</b></li> <li><b>2. Show user the response of fire-bridge.</b></li> </ol>
<b>Post-condition</b>	<b>This emerging condition is reported.</b>
<b>Includes</b>	<b>None</b>
<b>Extensions</b>	<b>None</b>
<b>Triggers</b>	<b>An active fire-alarm do not be reset the fire-alarm function in last 15 minutes.</b>



<b>ID</b>	<b>UC15</b>
<b>Name</b>	<b>Call Police</b>
<b>Description</b>	<b>System makes sure Burglar-alarm and call police.</b>
<b>Pre-conditions</b>	<ul style="list-style-type: none"> <li>Burglar-alarm is active.</li> <li>User set the function to call police.</li> </ul>
<b>Event flow</b>	<ol style="list-style-type: none"> <li>Report this emerging condition to relative police system.</li> <li>Show user the response of police.</li> </ol>
<b>Post-condition</b>	<b>This emerging condition is reported.</b>
<b>Includes</b>	<b>None</b>
<b>Extensions</b>	<b>None</b>
<b>Triggers</b>	<b>An active burglar-alarm do not be reset the fire-alarm function in last 15 minutes.</b>

<b>ID</b>	<b>UC16</b>
<b>Name</b>	<b>Identify Sensor</b>
<b>Description</b>	<b>indicates what type of sensor is attached when the system sends a set up message.</b>
<b>Pre-conditions</b>	<ul style="list-style-type: none"> <li>System in service.</li> <li>Sensor do not be identified.</li> </ul>
<b>Event flow</b>	<ol style="list-style-type: none"> <li>Each sensor indicated what type of sensor itself is to smart sensor.</li> <li>Smart sensor send type with code number to system storage devices.</li> </ol>
<b>Post-condition</b>	<b>System know what type of sensor which are attached with it.</b>
<b>Includes</b>	<b>None</b>
<b>Extensions</b>	<b>None</b>
<b>Triggers</b>	<b>system power up</b>

<b>ID</b>	<b>UC17</b>
<b>Name</b>	<b>Initial Sensors</b>
<b>Description</b>	<b>System sends a set up message to each sensor. Make it can be enable.</b>
<b>Pre-conditions</b>	<ul style="list-style-type: none"> <li>• System is powering up</li> <li>• System attached with at least one sensor</li> </ul>
<b>Event flow</b>	<ol style="list-style-type: none"> <li>1. Include UC16</li> <li>2. Send set up message to each sensor.</li> <li>3. Re-send, if there are error happen</li> </ol>
<b>Post-condition</b>	<b>All sensor is set up</b>
<b>Includes</b>	<b>UC16 "Identify Sensor"</b>
<b>Extensions</b>	<b>None</b>
<b>Triggers</b>	<b>system send the requirement to initiate all sensors.</b>

<b>ID</b>	<b>UC18</b>
<b>Name</b>	<b>Detect Door</b>
<b>Description</b>	<b>One of door sensor have detected irregular operation on door and activate burglar-alarm.</b>
<b>Pre-conditions</b>	<ul style="list-style-type: none"> <li>• At least one door sensor enable.</li> <li>• Input signal of this sensor is configured as signal of door sensor.</li> <li>• System in server</li> <li>• Burglar-alarm function is armed</li> </ul>
<b>Event flow</b>	<ol style="list-style-type: none"> <li>1. Sensor transform an irregular-door-signal into system.</li> <li>2. Re-send, if system do not response.</li> <li>3. System activate burglar alarm, after user configurable time.</li> </ol>
<b>Post-condition</b>	<b>System receive door sensor signal</b>
<b>Includes</b>	<b>None</b>
<b>Extensions</b>	<b>None</b>
<b>Triggers</b>	<b>Someone or something do an irregular operation for one of door in this house.</b>

<b>ID</b>	<b>UC19</b>
<b>Name</b>	<b>Detect Movement</b>
<b>Description</b>	<b>One of movement sensor have detected irregular movement in house and activate burglar-alarm.</b>
<b>Pre-conditions</b>	<ul style="list-style-type: none"> <li>• At least one movement sensor enable.</li> <li>• Input signal of this sensor is configured as signal of movement sensor.</li> <li>• System in server</li> <li>• Burglar-alarm function is armed</li> </ul>
<b>Event flow</b>	<ol style="list-style-type: none"> <li>1. Sensor transform the irregular-movement-signal into system.</li> <li>2. Re-send, if system do not response.</li> <li>3. System activate burglar alarm, after user configurable time.</li> </ol>
<b>Post-condition</b>	<b>System receive movement signal</b>
<b>Includes</b>	<b>None</b>
<b>Extensions</b>	<b>None</b>
<b>Triggers</b>	<b>Someone or something move irregularly in this house.</b>

<b>ID</b>	<b>UC20</b>
<b>Name</b>	<b>Detect Windows</b>
<b>Description</b>	<b>One of windows sensor have detected some irregular operation on windows and activate burglar-alarm.</b>
<b>Pre-conditions</b>	<ul style="list-style-type: none"> <li>• At least one window sensor enable.</li> <li>• Input signal of this sensor is configured as signal of window sensor.</li> <li>• System in server</li> <li>• Burglar-alarm function is armed</li> </ul>
<b>Event flow</b>	<ol style="list-style-type: none"> <li>1. Sensor transform an irregular-window -signal into system.</li> <li>2. Re-send, if system do not response.</li> <li>3. System activate burglar alarm, after user configurable time.</li> </ol>
<b>Post-condition</b>	<b>System receive window signal</b>
<b>Includes</b>	<b>None</b>
<b>Extensions</b>	<b>None</b>
<b>Triggers</b>	<b>Someone or something do an irregular operation for one of window in this house.</b>

<b>ID</b>	<b>UC21</b>
<b>Name</b>	<b>Ensure fire</b>
<b>Description</b>	<b>One of smoke sensor have indicated smoke 3 times in 1 minute. Then, it activates the fire-alarm.</b>
<b>Pre-conditions</b>	<ul style="list-style-type: none"> <li>Smoke sensors have already indicated smoke 2 times in 1 minute in this house.</li> <li>At least one smoke sensor enable.</li> <li>Input signal of this sensor is configured as signal of smoke sensor.</li> <li>System in server</li> </ul>
<b>Event flow</b>	<ol style="list-style-type: none"> <li>Sensor transform a smoke-signal into system.</li> <li>Re-send, if system do not response.</li> <li>System activate fire-alarm.</li> </ol>
<b>Post-condition</b>	<b>fire-alarm is activated</b>
<b>Includes</b>	<b>None</b>
<b>Extensions</b>	<b>None</b>
<b>Triggers</b>	<b>One of smoke sensor have indicated smoke 3 times in 1 minute.</b>

<b>ID</b>	<b>UC22</b>
<b>Name</b>	<b>Detect Smoke</b>
<b>Description</b>	<b>One of smoke sensor have indicated smoke and it alarms smoke itself.</b>
<b>Pre-conditions</b>	<ul style="list-style-type: none"> <li>At least one smoke sensor enables.</li> <li>Input signal of this sensor is configured as signal of smoke sensor.</li> <li>System in server</li> </ul>
<b>Event flow</b>	<ol style="list-style-type: none"> <li>UC21, if smoke sensors have already indicated smoke 2 times in 1 minute in this house.</li> <li>Sensor transform a smoke-signal into system and it activate the smoke alarm itself.</li> <li>Re-send, if system do not response.</li> </ol>
<b>Post-condition</b>	<b>fire-alarm is activated</b>
<b>Includes</b>	<b>None</b>
<b>Extensions</b>	<b>UC21</b>
<b>Triggers</b>	<b>One of smoke sensor have indicated smoke.</b>

<b>ID</b>	<b>UC23</b>
<b>Name</b>	<b>Detect Heat</b>
<b>Description</b>	<b>One of heat sensor have indicated extra heat and it activates heat-alarmin system.</b>
<b>Pre-conditions</b>	<ul style="list-style-type: none"> <li>• At least one heat sensor enables.</li> <li>• Input signal of this sensor is configured as signal of heat sensor.</li> <li>• System in server</li> </ul>
<b>Event flow</b>	<ol style="list-style-type: none"> <li>1. Sensor transform a fire-signal into system.</li> <li>2. Re-send, if system do not response.</li> <li>3. System activate fire-alarm.</li> </ol>
<b>Post-condition</b>	<b>fire-alarm is activated</b>
<b>Includes</b>	<b>None</b>
<b>Extensions</b>	<b>None</b>
<b>Triggers</b>	<b>One of heat sensor have indicated extra heat.</b>

<b>ID</b>	<b>UC24</b>
<b>Name</b>	<b>Detect Water</b>
<b>Description</b>	<b>One of water sensor have indicated water and it activates heat-alarmin system.</b>
<b>Pre-conditions</b>	<ul style="list-style-type: none"> <li>• At least one water sensor enables.</li> <li>• Input signal of this sensor is configured as signal of water sensor.</li> <li>• System in server</li> </ul>
<b>Event flow</b>	<ol style="list-style-type: none"> <li>4. Sensor transform a fire-signal into system.</li> <li>5. Re-send, if system do not response.</li> <li>6. System activate floor-alarm.</li> </ol>
<b>Post-condition</b>	<b>Water-alarm is activated</b>
<b>Includes</b>	<b>None</b>
<b>Extensions</b>	<b>None</b>
<b>Triggers</b>	<b>One of water sensor have indicated water in this house.</b>

## Non-functional Requirement:

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### 1. Accessibility

(Usability requirements, Product requirements)

a) **Description:**

While the people who experience disabilities operate this system, it should be easy to use for them, for example, set the braille on the key pad and offer audio for the system operation.

b) **Testing mechanism:**

Ask a great number of disable volunteers to implements all functions which is offered by the system. Then, measure the time they spend on doing each of function. If the average time for any of these functions is over 1 minutes, it cannot pass this test. It means this prototype need to improve.

### 2. Usability

(Usability requirements, Product requirements)

a) **Description:**

After a short time train, user can easily use this system.

b) **Testing mechanism:**

A great number of volunteers are train how to use this house system. Next, offer a set of tasks to finish with the system (such as, open or close one of sensor and reset burglar-alarm-function etc.). Measure the time volunteers cause and ask the feedback from volunteers. If average time of any of task is over 10 minutes or over 10 percent volunteers have a negative feedback. Test cannot be passed and this prototype needs to improve.

### 3. Response time

(Performance requirements, Efficiency requirements, Product requirements)

a) **Description:**

While user operate any of functions which is offered by system, user

can receive a response message and the waiting time cannot over 2 minutes.

b) **Testing mechanism:**

Firstly, run many house security systems in different condition.

Then, execute each function many times and measure the response time for each of function.

After that, if any of response time over 2 minutes. It cannot pass this test.

#### 4. Fault tolerance

(Performance requirements, Efficiency requirements, Product requirements)

a) **Description:**

While user use 1 year of this system, the times of error cannot over 3 times.

b) **Testing mechanism:**

First, offer a great number of completed house security system.

Next, continuously execute a set of predetermined tasks on each if system.

After that, count the time for total error. And calculate the possibility of error happen each month. If the possibility is over 25 percent, the prototype is failed in this test.

#### 5. Storage device

(Space requirements, Efficiency requirements, Product requirements)

a) **Description:**

While user attach # sensors ("#" do not over 5) into the house security system, the system can normally offer all functions.

b) **Testing mechanism:**

Firstly, offer 100 normally house security systems.

Next, connect 5 sensors into this system

After that, test all function for each of these systems.

If over 5 systems can completely offer all functions which it should offer.

The prototype cannot pass the test

## TASK 2

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### Floor alarm sub-system:

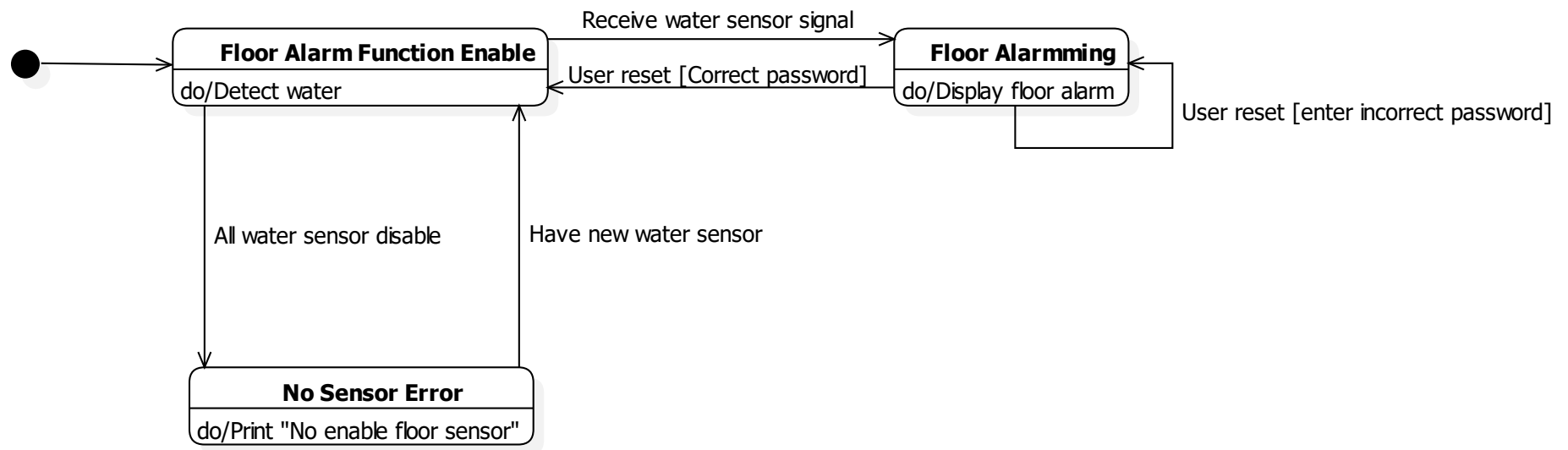
- **State:**

States	Description
Floor Alarm Function Enable	The system is waiting for the signal from water sensors
No Sensor Error	The system response error because there is not any enable water sensor.
Floor Alarming	The Floor alarm in the system have been activated in this status. System will display a floor alarm.

- **Event:**

Events	Description
All water sensor disables	System find out there is not any enable water sensor.
Have new water sensor	A new water sensor is detected to attach in system.
Receive water sensor signal	System receive the signal from water sensor.
User reset [Correct Password]	User reset using correct password the floor alarm function to stop the floor alarm.
User reset [Incorrect Password]	User reset using incorrect password the floor alarm function. Therefore, alarm cannot stop.





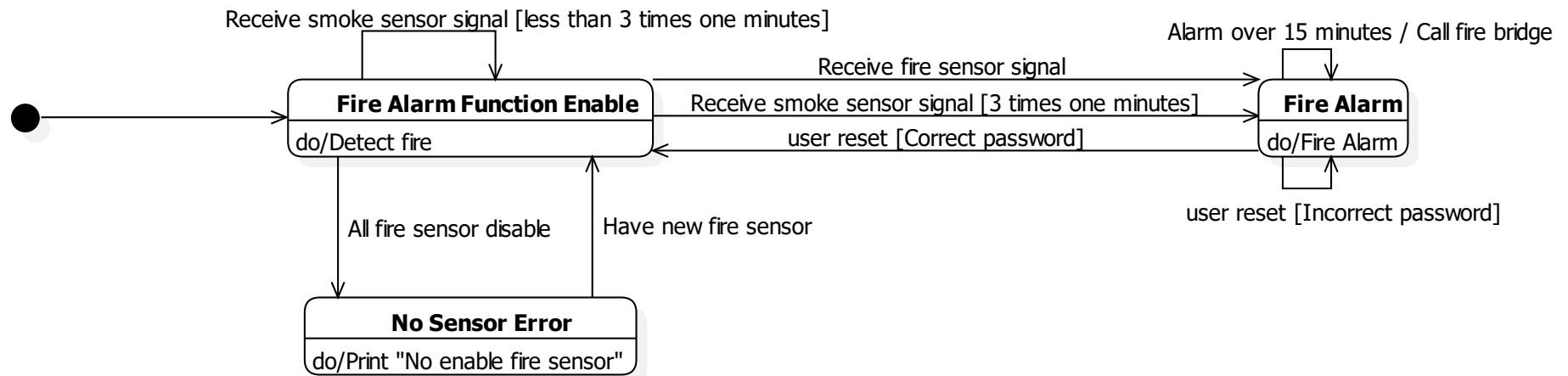
## Fire alarm sub-system:

- **States:**

States	Description
Fire Alarm Function Enable	The system is waiting for the signal from smoke and heat sensors.
No Sensor Error	The system response error because there is not any enable heat and smoke detector.
Fire Alarming	The fire alarm in the system is activated in this status. System display a fire alarm in this status.

- **Event:**

Events	Description
All fire sensor disables	System find out there is not any enable water sensor.
Have new fire sensor	A new fire sensor is detected to attach in system.
Receive smoke sensor signal [Less 3 times one minutes]	System receive the signal from smoke sensor. But, it is less than 3 times in 1 minutes
Receive smoke sensor signal [3 times one minutes]	System receive the signal from smoke sensor third times one in minutes.
Receive heat sensor signal	System receive the signal from heat sensor.
User reset [Correct Password]	User uses incorrect password to reset fire alarm function to stop the fire alarm.
User reset [Incorrect Password]	User uses incorrect password to reset the fire alarm function.
Over 15 Minutes	The system display fire alarm over 15 minutes.



## Security alarm sub-system:

- **States:**

States	Description
Burglar Alarm Function Enable	The system is waiting for the signal from door, window and movement sensors.
Burglar Alarm Function disable	Burglar alarm function is close.
No Sensor Error	The system response error because there is not any enable door, window and movement sensors.
Waiting Period	Wait amount of time which is set by user for cancel receive burglar sensor signal.
Burglar Alarm	The burglar alarm in the system is activated. System display a burglar alarm in this status.

- **Event:**

Events	Description
All burglar sensor disables	System find out there is not any enable door, window and movement sensor.
Have new burglar sensor	A new door, window or movement sensor is detected to attach in system.
enable time up	Enable time which is set by user up
Disable time up	Disable time which is set by user up
User make enable	User enable the burglar function.
User make disable	User disable the burglar function.
Receive burglar sensor signal	System receive the signal from door, window or movement sensor.
User reset [Correct Password]	User uses incorrect password to reset fire alarm function to stop the burglar alarm.
User reset [Incorrect Password]	User uses incorrect password to reset the burglar alarm function.
Over a user configurable amount of time	The system waiting user cancel over a user configurable amount of time
Call police	System call police system

