

Section	Content		
Identifier	Control Gym		
Name	Gym Controller		
Author	Karoliina Varis, Francisco Vieira and Guilherme Castro		
Version	V1.0		
Change history			
Priority			
Criticality			
Source			
Short description	The Controller will manage all his functions so that he can keep the temperature, humidity and amount of light right for each ages and purpose of the Gym, using the least amount of energy needed.		
Use Case level			
Goal(s)	Automatic control of windows, blinds, lights, heaters, air coolers and dryers to have the right value of temperature, humidity and light in the Gym.		
Primary actor	kindergarten teachers.		
Other actors	Children, employers, visitors.		
Precondition	Values of Temperature, Light and Humidity for the Gym.		
Postcondition	Keep the preset values in the Gym.		
Result	Decide in each moment if: windows and blinds are open or close; heaters, air coolers, dryers and lights are on or off.		
Main Scenario	1	Kindergarten teacher defines the perfect temperature, humidity and lightness in Gym in the various periods of a day.	
		1.1	It is also possible to choose if there are certain actuators that can not be activated in certain moments.
	2	Controller is receiving values of temperature from the sensor all the time and operate in the actuators if needed.	
		2.1	Receive values of the Gym
		2.2	Calculate the difference between the present value and the defined as perfect condition.
		2.3	If difference is notable it will make a decision depending on the conditions outside and hour in which this is happening.
			2.3.1 If it is night, it will not open a window or blinds for security issues.
			2.3.2 If there were put a restriction in on actuator at that hour it won't be activated.
			2.3.3 Respecting the previous mentions, it will have the following priorities on actuators:
			1. Open/Close Blinds/Windows
			2. Turn On/Off Heaters/Air Coolers/Lights/Dryers
		2.3.3.1	Lights have 3 options: Off, Mid-light, Full-light
	3	If an actor activates any actuator or open a window/blind and the value of temperature, humidity and light are as preset, controller will consider that the defined value is not what is needed in the moment and turn down devices that will counteract what that action means.	

		3.1	If heater is turned on, windows are closed, and air cooler turned off if it is on.
		3.2	If air cooler is turn on, windows are closed, and heater turned off if it is on.
		3.3	If dryer is turned on, windows are open if no humidity outside, or closed if there is some.
		3.4	If window opened, heaters and air cooler turned off, dryers are turned on if some humidity outside.
		3.5	If blinds closed, turn lights on to full-light.
		3.6	Product takes the control of the room back to the preset values when is told to do it or in the end of the day.
	4	If door of the gym to the hall is opened and the hall has a different preset value, nothing is change in 15 minutes. After that an alarm goes off to inform that controller is going to close the door. In the next minute if nothing happens to the door, controller closes it.	
Alternative Scenario(s)	1a	Kindergarten teacher choose that Gym will not be controlled by the controller in that day.	
Exception Scenario(s)			

Section	Content		
Identifier	Control Bathroom (with window)		
Name	Bathroom with window Controller		
Author	Karoliina Varis, Francisco Vieira and Guilherme Castro		
Version	V1.0		
Change history			
Priority			
Criticality			
Source			
Short description	The Controller will manage all his functions so that he can keep the temperature, humidity and amount of light right for each ages and purpose of the Bathroom, using the least amount of energy needed.		
Use Case level			
Goal(s)	Automatic control of windows, blinds, lights, heaters, air coolers and dryers to have the right value of temperature, humidity and light in the Bathroom.		
Primary actor	kindergarten teachers.		
Other actors	Children, employers, visitors.		
Precondition	Values of Temperature, Light and Humidity for the Bathroom.		
Postcondition	Keep the preset values in the Bathroom.		
Result	Decide in each moment if: windows and blinds are open or close; heaters, dryers and lights are on or off.		
Main Scenario	1	Kindergarten teacher defines the perfect temperature, humidity and lightness in Bathroom in the various periods of a day.	
	1.1	It is also possible to choose if there are certain actuators that can not be activated in certain moments.	

	2	Controller is receiving values of temperature from the sensor all the time and operate in the actuators if needed.		
		2.1	Receive values of the Bathroom	
		2.2	Calculate the difference between the present value and the defined as perfect condition.	
		2.3	If difference is notable it will make a decision depending on the conditions outside and hour in which this is happening.	
			2.3.1	If it is night, it will not open a window or blinds for security issues.
			2.3.2	If there were put a restriction in on actuator at that hour it won't be activated.
			2.3.3	Respecting the previous mentions, it will have the following priorities on actuators: 1. Open/Close Blinds/Windows 2. Turn On/Off Heaters/Lights/Dryers
		2.3.3.1		Lights have 3 options: Off, Mid-light, Full-light
	3	If an actor activates any actuator or open a window/blind and the value of temperature, humidity and light are as preset, controller will consider that the defined value is not what is needed in the moment and turn down devices that will counteract what that action means.		
		3.1	If heater is turned on, windows are closed.	
		3.3	If dryer is turned on, windows are open if no humidity outside, or closed if there is some.	
		3.4	If window opened, heaters turned off, dryers are turned on if some humidity outside.	
		3.5	If blinds closed, turn lights on to full-light.	
		3.6	Product takes the control of the room back to the preset values when is told to do it or in the end of the day.	
	4	If door of the Bathroom to the hall is opened and the hall has a different preset value, nothing is change in 15 minutes. After that an alarm goes off to inform that controller is going to close the door. In the next minute if nothing happens to the door, controller closes it.		
Alternative Scenario(s)	1a	Kindergarten teacher choose that Bathroom will not be controlled by the controller in that day.		
Exception Scenario(s)				

Section	Content
Identifier	General (with window) Control
Name	General Room with window Controller
Author	Karoliina Varis, Francisco Vieira and Guilherme Castro
Version	V1.0
Change history	

Priority																													
Criticality																													
Source																													
Short description	The Controller will manage all his functions so that he can keep the temperature, humidity and amount of light right for each ages and purpose of each room of a kindergarten, using the least amount of energy needed.																												
Use Case level																													
Goal(s)	Automatic control of windows, blinds, heaters and lights to have the right value of temperature, humidity and light for each room case.																												
Primary actor	kindergarten teachers.																												
Other actors	Children, employers, visitors.																												
Precondition	Values of Temperature, Light and Humidity for the room defined.																												
Postcondition	Keep the right values in the room.																												
Result	Decide in each moment if: windows and blinds are open or close; heaters and lights are on or off.																												
Main Scenario	<table> <tr> <td>1</td><td>Kindergarten teacher defines the perfect temperature, humidity and lightness in each room in the various periods of a day.</td></tr> <tr> <td>1.1</td><td>It is also possible to chose if there are certain actuators that can not be activated in certain moments.</td></tr> <tr> <td>2</td><td>Controller is receiving values of temperature of each room all the time and operate in the actuators if needed.</td></tr> <tr> <td>2.1</td><td>Receive values of a room</td></tr> <tr> <td>2.2</td><td>Calculate the difference between the present value and the defined as perfect condition.</td></tr> <tr> <td>2.3</td><td>If difference is notable it will make a decision depending on the conditions outside and hour in which this is happening.</td></tr> <tr> <td>2.3.1</td><td>If it is night, it will not open a window or blinds for security issues.</td></tr> <tr> <td>2.3.2</td><td>If there were put a restriction in on actuator at that hour it won't be activated.</td></tr> <tr> <td>2.3.3</td><td>Respecting the previous mentions, it will have the following priorities on actuators: <ul style="list-style-type: none"> 1. Open/Close Blinds/Windows 2. Turn On/Off Heaters/Lights </td></tr> <tr> <td>2.3.3.1</td><td>Lights have 3 options: Off, Mid-light, Full-light</td></tr> <tr> <td>3</td><td>If an actor activates any actuator or open a window/blind and the value of temperature, humidity and light are as preset, controller will consider that the defined value is not what is needed in the moment and turn down devices that will counteract what that action means.</td></tr> <tr> <td>3.1</td><td>If heater is turned on, windows are closed</td></tr> <tr> <td>3.4</td><td>If window opened, heaters turned off, are turned on if some humidity outside.</td></tr> <tr> <td>3.5</td><td>If blinds closed, turn lights on to full-light.</td></tr> </table>	1	Kindergarten teacher defines the perfect temperature, humidity and lightness in each room in the various periods of a day.	1.1	It is also possible to chose if there are certain actuators that can not be activated in certain moments.	2	Controller is receiving values of temperature of each room all the time and operate in the actuators if needed.	2.1	Receive values of a room	2.2	Calculate the difference between the present value and the defined as perfect condition.	2.3	If difference is notable it will make a decision depending on the conditions outside and hour in which this is happening.	2.3.1	If it is night, it will not open a window or blinds for security issues.	2.3.2	If there were put a restriction in on actuator at that hour it won't be activated.	2.3.3	Respecting the previous mentions, it will have the following priorities on actuators: <ul style="list-style-type: none"> 1. Open/Close Blinds/Windows 2. Turn On/Off Heaters/Lights 	2.3.3.1	Lights have 3 options: Off, Mid-light, Full-light	3	If an actor activates any actuator or open a window/blind and the value of temperature, humidity and light are as preset, controller will consider that the defined value is not what is needed in the moment and turn down devices that will counteract what that action means.	3.1	If heater is turned on, windows are closed	3.4	If window opened, heaters turned off, are turned on if some humidity outside.	3.5	If blinds closed, turn lights on to full-light.
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		3.6	Product takes the control of the room back to the preset values when is told to do it or in the end of the day.
	4		If a door to outside or to a room with a different preset value is opened, nothing is change in 15 minutes. After that an alarm goes off to inform that controller is going to close the door. In the next minute if nothing happens to the door, controller closes it.
Alternative Scenario(s)	1a		Kindergarten teacher choose that the room will not be controlled by the controller in that day.
Exception Scenario(s)			

Section	Content		
Identifier	Kitchen Control		
Name	Kitchen Controller		
Author	Karoliina Varis, Francisco Vieira and Guilherme Castro		
Version	V1.0		
Change history			
Priority			
Criticality			
Source			
Short description	The Controller will manage all his functions so that he can keep the temperature, humidity and amount of light right for each ages and purpose of the Kitchen, using the least amount of energy needed.		
Use Case level			
Goal(s)	Automatic control of lights, heaters, air coolers and dryers to have the right value of temperature, humidity and light in the Kitchen.		
Primary actor	kindergarten teachers.		
Other actors	Children, employers, visitors.		
Precondition	Values of Temperature, Light and Humidity for the Kitchen.		
Postcondition	Keep the preset values in the Kitchen.		
Result	Decide in each moment if: heaters, air coolers, dryers and lights are on or off.		
Main Scenario	1	Kindergarten teacher defines the perfect temperature, humidity and lightness in Kitchen in the various periods of a day.	
	1.1	It is also possible to choose if there are certain actuators that can not be activated in certain moments.	
	2	Controller is receiving values of temperature from the sensor all the time and operate in the actuators if needed.	
	2.1	Receive values of the Kitchen	
	2.2	Calculate the difference between the present value and the defined as perfect condition.	
	2.3	If difference is notable it will make a decision depending on hour in which this is happening.	
	2.3.1	If there were put a restriction in on actuator at that hour it won't be activated.	
	2.3.2	Lights have 3 options: Off, Mid-light, Full-light	

	3	If door of the Kitchen to the Canteen is opened and the Canteen has a different preset value, nothing is change in 15 minutes. After that an alarm goes off to inform that controller is going to close the door. In the next minute if nothing happens to the door, controller closes it.
Alternative Scenario(s)	1a	Kindergarten teacher choose that Kitchen will not be controlled by the controller in that day.
Exception Scenario(s)		

Section	Content	
Identifier	Hall Control	
Name	Hall Controller	
Author	Karoliina Varis, Francisco Vieira and Guilherme Castro	
Version	V1.0	
Change history		
Priority		
Criticality		
Source		
Short description	The Controller will manage all his functions so that he can keep the temperature, humidity and amount of light right for each ages and purpose of the Hall, using the least amount of energy needed.	
Use Case level		
Goal(s)	Automatic control of lights, heaters and dryers to have the right value of temperature, humidity and light in the Hall.	
Primary actor	kindergarten teachers.	
Other actors	Children, employers, visitors.	
Precondition	Values of Temperature, Light and Humidity for the Hall.	
Postcondition	Keep the preset values in the Hall.	
Result	Decide in each moment if: heaters, dryers and lights are on or off.	
Main Scenario	1	Kindergarten teacher defines the perfect temperature, humidity and lightness in Hall in the various periods of a day.
	1.1	It is also possible to choose if there are certain actuators that can not be activated in certain moments.
	2	Controller is receiving values of temperature from the sensor all the time and operate in the actuators if needed.
	2.1	Receive values of the Hall
	2.2	Calculate the difference between the present value and the defined as perfect condition.
	2.3	If difference is notable it will make a decision depending on the hour in which this is happening.
	2.3.1	If there were put a restriction in on actuator at that hour it won't be activated.
	2.3.2	Lights have 3 options: Off, Mid-light, Full-light
	3	If door of the Hall to any room is opened and the room has a different preset value, nothing is change in 15 minutes. After that an alarm goes off to inform that controller is going to close the door. In the next minute if nothing happens to the door, controller closes it.

Alternative Scenario(s)	1a	Kindergarten teacher choose that Hall will not be controlled by the controller in that day.
Exception Scenario(s)		

Section	Content	
Identifier	General (without window) Control	
Name	General Room without window Controller	
Author	Karoliina Varis, Francisco Vieira and Guilherme Castro	
Version	V1.0	
Change history		
Priority		
Criticality		
Source		
Short description	The Controller will manage all his functions so that he can keep the temperature, humidity and amount of light right for each ages and purpose of each room of a kindergarten.	
Use Case level		
Goal(s)	Automatic control of heaters and lights to have the right value of temperature, humidity and light for each room case.	
Primary actor	kindergarten teachers.	
Other actors	Children, employers, visitors.	
Precondition	Values of Temperature, Light and Humidity for the room defined.	
Postcondition	Keep the right values in the room.	
Result	Decide in each moment if: heaters and lights are on or off.	
Main Scenario	1	Kindergarten teacher defines the perfect temperature, humidity and lightness in each room in the various periods of a day.
	1.1	It is also possible to chose if there are certain actuators that can not be activated in certain moments.
	2	Controller is receiving values of temperature of each room all the time and operate in the actuators if needed.
	2.1	Receive values of a room
	2.2	Calculate the difference between the present value and the defined as perfect condition.
	2.3	If difference is notable it will make a decision depending on the conditions outside and hour in which this is happening.
	2.3.1	If there were put a restriction in on actuator at that hour it won't be activated.
	2.3.2	Lights have 3 options: Off, Mid-light, Full-light
	4	If a door to a room with a different preset value is opened, nothing is change in 15 minutes. After that an alarm goes off to inform that controller is going to close the door. In the next minute if nothing happens to the door, controller closes it.
Alternative Scenario(s)	1a	Kindergarten teacher choose that the room will not be controlled by the controller in that day.
Exception Scenario(s)		