CLAIMS

1. A scalable home automation system for monitoring, managing and controlling a sanitary facility and elements that comprise said sanitary facility by one or several connected devices that communicate with one another through a system network, said system network able to be physically divided into several sub-networks, comprising one or more of:

a wireless network, the wireless network using a wireless protocol comprising one or more of Zigbee, Wireless Fidelity (Wi-Fi), or Internet Protocol version 6 over Low-Power Wireless Personal Area Networks(6LoWPAN);

a wired network, the wired network using a wired protocol comprising one or more of Ethernet, or HomePlug; or

a mobile network, the mobile network using a mobile protocol comprising one or more of General Packet Radio Service (GPRS), Universal Mobile Telecommunications System (UMTS), or Long-Term Evolution (LTE); and

said one or several connected devices comprises:

one or more hardware and software to establish a connection over an internet network through the system network;

an electronic interface comprising:

a logic processing unit configured to execute a software that allows the logic processing unit to carry out its function or functions;

hardware and software to communicate with the other connected devices of said system through the system network;

hardware and software to ensure a repeater functionality in order to extend a range of at least one signal over a transmission support of the system network to provide interconnection of the connected devices;

hardware and software to ensure a gateway functionality in order to interconnect two sub-system networks each using a different protocol;

hardware and software in order to communicate with one or more remote terminals that are connected to the Internet, the remote terminals comprising one or more of Smartphones, touchscreen tablets, computers, or servers;

hardware and software in order to carry out its function or functions by using information communicated by other connected devices;

hardware and software configured to carry out its function or functions by using the information or commands communicated by the remote terminals connected to the Internet;

hardware and software configured to transmit alert messages or information to the remote terminals; and

wherein the system is configured to:

react to signals sent by one of the connected devices indicating that a valve has not closed or to signals sent by one or more connected devices indicating that at least one of the connected device has detected humidity, and said reaction comprises closing the valve and sending a "closing" alert over the system network;

measure a flow rate (D) supplied by a flow rate sensor;

verify the flow rate (D)> 0 l/min and returning to the react step otherwise;

verify that the valve is not closed which means that it is in fault and switch directly to send a "closing fault" alert so as to alert the connected device;

calculate a residual flow rate (Dj), wherein the residual flow rate (Dj) = the flow rate (D) – a sum of flow rates measured by a flow rate sensor recorded in a list “od” ($\sum Di$);

verify that the residual flow rate (Dj) is greater than 0; and

apply an alert method as a parameter of the residual flow rate (Dj) on the basis of a determination that the residual flow rate (Dj) is not in a normal operating zone.

2. System according to claim 1 comprising a connected device called a "sensor-actuator" comprising:

a water inlet fitting at one end and a water outlet fitting at another end which allows for a connection of said "sensor-actuator" connected device on a pipe of the sanitary facility;

an electric valve, by using an electric signal, configured to control a flow rate of the water circulating in the pipe whereon said "sensor-actuator" connected device is mounted; and

a flow rate sensor configured to supply an electric signal, said electric signal having at least one characteristic variable according to the flow rate circulating in the pipe whereon said connected device called "sensor-actuator" is mounted.

3. System according to claim 2 wherein the connected device called "sensor-actuator" comprises a pressure sensor configured to supply another electric signal of which at least one of the characteristics varies according to a pressure of the water at the water inlet of said connected device called "sensor-actuator".

4. System according to claim 1 comprising a connected device called "single cut-off sanitary collector", which comprises a plurality of circuit outlets and a single valve and comprising:

a water inlet fitting at each one of the two ends of said "single cut-off sanitary collector" connected device in order to connect the primary pipe and/or another sanitary collector;

a fitting for each water outlet on the side of said "single cut-off sanitary collector" connected device that allows for the connecting of the secondary pipes and the installation of said "single cut-off sanitary collector" connected device;

an electric valve, by using an electric signal, configured to control the flow rate of the water circulating to the water outlets of said "single cut-off sanitary collector" connected device; and

a flow rate sensor for each water outlet configured to supply an electric signal of which at least one of the characteristics varies according to the flow rate circulating to the water outlet whereon the sensor is connected.

5. System according to claim 4, comprising a connected device called "multi cut-off modular sanitary collector", which comprises a plurality of circuit outlets and a plurality of valves at the water outlet and comprising:

a water inlet fitting at each one of the two ends of said "multi cut-off sanitary collector" connected device in order to connect the primary pipe and/or another sanitary collector;

a fitting for each water outlet on the side of said "single cut-off sanitary collector" connected device that allows for the connecting of the secondary pipes and the installation of said "single cut-off sanitary collector" connected device;

an electric valve for each water outlet, by using an electric signal, configured to control the flow rate of the water circulating to the water outlet whereon the electric valve is connected; and

a flow rate sensor for each water outlet configured to supply an electric signal of which at least one of the characteristics varies according to the flow rate circulating to the water outlet whereon the sensor is connected.

6. System according to claim 4, the connected device called "single cut-off modular sanitary collector" comprising:

a single cut-off basic module connected device configured on the basis of the "single cut-off sanitary collector," comprising:

a water inlet fitting allowing for the connection of the primary pipe;

a primary water outlet fitting allowing for the connection of a connected device called "single cut-off additional module";

an electrical connector configured to connect the "single cut-off additional module" connected device to the wired system network supplied by said "single cut-off basic module" connected device ;

a secondary water outlet fitting allowing for the connection of a secondary pipe;

an electric valve, by using an electric signal, configured to control the flow rate of the water circulating to the primary water outlet and to the secondary water outlet;

a flow rate sensor configured to supply an electric signal of which at least one of the characteristics varies according to the flow rate circulating to the secondary water outlet;

at least one single cut-off additional module connected device configured on the basis of the "single cut-off sanitary collector" in order to form a sanitary collector allowing for the connection of said "single cut-off modular sanitary collector" connected device and wherein the at least one single cut-off additional module

connected device comprises:

a water inlet fitting configured to connect said "single cut-off additional module" connected device to the "single cut-off basic module" connected device or to another "single cut-off additional module" connected device;

an electrical connector configured to connect said "single cut-off additional module" connected device to the wired system by the "single cut-off basic module" connected device or transmitted by another "single cut-off additional module" connected device;

a primary water outlet fitting allowing for the connection of another "single cut-off additional module" connected device;

an electrical connector configured to connect another "single cut-off additional module" connected device to the system network supplied by the "single cut-off basic module" connected device and transmitted by said "single cutoff additional module" connected device;

a secondary water outlet fitting allowing for the connection of a secondary pipe; and

a flow rate sensor configured to supply an electric signal of which at least one of the characteristics varies according to the flow rate circulating to the secondary water outlet.

7. System according to claim 5, the connected device called "multi cut-off modular sanitary collector" comprising:

a multi cut-off basic module connected device configured on the basis of the "multi cut-off sanitary collector" device, comprising:

a water inlet fitting allowing for the connection of the primary pipe;

a primary water outlet fitting allowing for the connection of a "multi cut-off additional module" connected device;

an electrical connector configured to connect a "multicut-off additional module" connected device to the wired system network by said "multi cut-off basic module" connected device;

a secondary water outlet fitting allowing for the connection of a secondary pipe;

an electric valve, by using an electric signal, configured to control the flow rate of the water circulating to the secondary water outlet;

a flow rate sensor configured to supply an electric signal of which at least one of the characteristics varies according to the flow rate circulating to the secondary water outlet;

at least one multi cut-off additional module connected device configured on the basis of the "multi cut-off sanitary collector" in order to form a sanitary collector allowing for the connection of said "multi cut-off modular sanitary collector" connected device and wherein each one of said "multi cut-off additional module" connected device comprises:

a water inlet fitting configured to connect said "multi cut-off additional module" connected device to the "multi cut-off basic module" connected device or to another "multi cut-off additional module" connected device;

an electrical connector configured to connect said "multi cut-off additional module" connected device to the wired system provided by the "multi cut-off basic module" connected device or transmitted by another "multi cut-off additional module" connected device;

a primary water outlet fitting allowing for the connection of another "multi cut-off additional module" connected device;

an electrical connector configured to connect another "multi cut-off additional module" connected device to the system network provides by the "multi cut-off basic module" connected device and transmitted by said "multi cut-off additional module" connected device;

a secondary water outlet fitting allowing for the connection of a secondary pipe;

an electric valve, by using an electric signal, configured to control the flow rate of the water circulating to the secondary water outlet; and

a flow rate sensor configured to control an electric signal of which at least one of the characteristics varies according to the flow rate circulating to the secondary water outlet.

8. System according to claim 1 comprising a connected device called "simple tap" or "two handles mixing tap" or "single handle mixing tap" comprising:

a water inlet fitting for the "simple tap" or two water inlet fittings for the "single handle mixing tap" or "two handles mixing tap."

9. System according to claim 8 comprising for each water inlet of said called "simple tap" or "two handles mixing tap" or "single handle mixing tap" connected device a flowmeter of the flow rate supplying an electric signal of which at least one characteristics varies according to the flow rate circulating in the water inlet on which the sensor is connected.

10. System according to claim 8 comprising a sensor for the "simple tap" and the “single handle mixing tap" or two sensors for the "two handles mixing tap", with each one of these sensors configured to supply an electric signal of which at least

one characteristic varies according to the position of the mechanism of the tap that detects the opening of said tap.

11. System according to claim 10 comprising an electric valve configured, by using an electric signal, to modify the flow rate circulating in said "simple tap" or "two handles mixing tap" or "single handle mixing tap" connected device.

12. System according to claim 8 comprising for each water inlet of said "simple tap" or "two handles mixing tap" or "single handle mixing tap" connected device an electric valve configured to, by using an electric signal, modify a flow rate circulating in said water inlet of the "simple tap" or "two handles mixing tap" or "single handle mixing tap" connected device.

13. System according to claim 1 comprising a connected device called "float valve" comprising:

a water inlet fitting configured to connect said "float valve" connected device on a pipe of the sanitary facility;

a water outlet allowing for filling of the tank;

a float integral with a position sensor configured to measure a level of water in a tank; and

an electric valve that, by using an electric signal, configured to control a flow rate of the water circulating to the water outlet.

14. System according to claim 1 comprising a connected device called "sanitary equipment" that integrates an interface that allows the connected device to:

transmit over the system network information on its operating state and on its use of water;

modify its operation according to information that it receives from the other connected devices; and

be able to be controlled by means of remote terminals connected to the internet.

15. System according to claim 1 comprising a connected device called "drainage plug" comprising:

either an electric valve provided with a position sensor, by using an electric signal, configured to control the flow rate of the water circulating from the water inlet to the outlet and as such to control the flow of the water in the drain;

or a mechanism comprising

a device, by using an electric signal, configured to modify the position of the maneuvering rods so as to raise or lower the drainage plug and as such control the flow of the water in the drain;

a position sensor configured to control the proper opening and the proper closing of the drainage plug.

16. System according to claim 1 wherein the connected device is a humidity sensor.

17. Method of configuring flow rate sensors of a scalable home automation system for monitoring, managing and controlling a sanitary facility and elements, wherein the system comprises:

the sanitary facility by one or several connected devices that communicate with one another through a system network,

said system network configured for physically division into several sub-networks, comprising one or more of:

a wireless network, the wireless network using a wireless protocol comprising one or more of Zigbee, Wireless Fidelity (Wi-Fi), or Internet Protocol version 6 over Low-Power Wireless Personal Area Networks (6LoWPAN);

a wired network, the wired network using a wired protocol comprising one or more of Ethernet, or HomePlug; or

a mobile network, the mobile network using a mobile protocol comprising one or more of General Packet Radio Service (GPRS), Universal Mobile Telecommunications System (UMTS), or Long-Term Evolution (LTE);

said one or several connected devices comprises:

one or more hardware and software in order to establish a connection over an internet network through the system network;

an electronic interface that comprises:

a logic processing unit configured to execute a software that allows it to carry out its function or functions;

hardware and software in order to communicate with all of the other connected devices of said system through the system network;

hardware and software in order to ensure a repeater functionality in order to extend a range of at least one signal over a transmission support of the system network in order to provide interconnection of all of the connected devices;

hardware and software in order to ensure a gateway functionality in order to interconnect two sub-system networks each using a different protocol;

hardware and software in order to communicate with a remote terminal connected to the Internet, the remote terminal comprising one or more of such as Smartphones, touchscreen tablets, computers, or servers;

hardware and software in order to carry out its function or functions by using information communicated by other connected devices;

hardware and software in order to carry out its function or functions by using the information or commands communicated by the remote terminal connected to the Internet;

hardware and software in order to transmit alert messages or information to the remote terminals;

a "sensor-actuator" comprising:

a water inlet fitting at one end and a water outlet fitting at another end which allows for a connection of said "sensor-actuator" connected device on a pipe of the sanitary facility;

an electric valve, by using an electric signal, controlling a flow rate of the water circulating in the pipe whereon said "sensor-actuator" connected device is mounted;

a flow rate sensor supplying an electric signal, said electric signal having at least one characteristic variable according to

the flow rate circulating in the pipe whereon said connected device called "sensor-actuator" is mounted; and

said method comprises:

creating a template with the flow rate (D) = 0 l/min ∀ time (t);

detecting the other devices connected to the system;

defining the connected device that integrates the electric valve that supplies with water said flow rate sensor and allowing the logic processing unit to record this electric valve in a variable referred to as "A";

a series of steps of defining the connected devices that are directly supplied with water by

said flow rate sensor and allowing the logic processing unit to execute the following algorithm:

record in a first list an electric valve;

record in a second list a flow rate sensor;

record in a third list a humidity sensor; and

a series of steps, by the logic processing unit, developing the template that sets the operating limits for the water points that do not have a dedicated connected device integrating a flow rate sensor and of which the supply with water is directly controlled by said flow rate sensor configured by said method.

18. Method for monitoring flow rate sensors of a scalable home automation system for monitoring, managing and controlling a sanitary facility and elements, wherein the system comprises:

the sanitary facility by one or several connected devices that communicate with one another through a system network,

said system network able to be physically divided into several sub-networks, comprising one or more of:

a wireless network, the wireless network using a wireless protocol comprising one or more of Zigbee, Wireless Fidelity (Wi-Fi), or Internet Protocol version 6 over Low-Power Wireless Personal Area Networks (6LoWPAN);

a wired network, the wired network using a wired protocol comprising one or more of Ethernet, or HomePlug; or

a mobile network, the mobile network using a mobile protocol comprising one or more of General Packet Radio Service (GPRS), Universal Mobile Telecommunications System (UMTS), or Long-Term Evolution (LTE);

said one or several connected devices comprise:

one or more hardware and software in order to establish a connection over an internet network through the system network

an electronic interface that comprises:

a logic processing unit that executes a software that allows it to carry out its function or functions;

hardware and software in order to communicate with all of the other connected devices of said system through the system network;

hardware and software in order to ensure a repeater functionality in order to extend a range of at least one signal over a transmission support of the system network in order to provide interconnection of the connected devices;

hardware and software in order to ensure a gateway functionality in order to interconnect two sub-system networks each using a different protocol;

hardware and software in order to communicate with a remote terminal connected to the Internet, the remote terminals comprising one or more of such as Smartphones, touchscreen tablets, computers, or servers;

hardware and software in order to carry out its function or functions by using information communicated by other connected devices;

hardware and software in order to carry out its function or functions by using the information or commands communicated by the remote terminals that are connected to the Internet;

hardware and software in order to transmit alert messages or information to the remote terminals; and

said method for monitoring comprises:

a reaction step wherein the logic processing unit reacts to signals sent by one of the connected devices indicating that an electric valve has not closed or to signals sent by one of the connected devices indicating that the connected device has detected humidity, and said reaction by the logic processing unit comprises of closing the electric valve "A" and in sending a "closing" alert over the system network;

measuring the flow rate (D) supplied by the flow rate sensor monitored by said method;

verifying the flow rate (D)> 0 l/min and returning to the reaction step otherwise;

verifying that the electric valve "A" is not closed which means that it is in fault and

switch directly to send a "closing fault" alert so as to alert the connected device that is supplying it and return to the reaction step;

a series of looped steps calculating a residual flow rate (Dj) wherein the residual flow rate (Dj) = the flow rate (D) – a sum of flow rates measured by the flow rate sensor recorded in a list “od” (∑Di);

verifying that the residual flow rate (Dj) is greater than 0 and returning otherwise to the reaction step; and

a step that uses a template developed during a configuration in order to apply an alert method as a parameter of the residual flow rate (Dj) on the basis of a determination that the residual flow rate (Dj) is not in a normal operating zone.

19. Alert method of the flow rate sensors of a scalable home automation system for monitoring, managing and controlling a sanitary facility and elements, wherein the system comprises:

the sanitary facility by one or several connected devices that communicate with one another through a system network,

said system network able to be physically divided into several sub-networks, comprising one or more of:

a wireless network, the wireless network using a wireless protocol comprising one or more of Zigbee, Wireless Fidelity (Wi-Fi), or Internet Protocol version 6 over Low-Power Wireless Personal Area Networks (6LoWPAN);

a wired network, the wired network using a wired protocol comprising one or more of Ethernet, or HomePlug; or

a mobile network, the mobile network using a mobile protocol

comprising one or more of General Packet Radio Service (GPRS), Universal Mobile Telecommunications System (UMTS), or Long-Term Evolution (LTE);

said one or several connected devices comprises:

one or more hardware and software in order to establish a connection over an internet network through the system network

an electronic interface that comprises:

a logic processing unit that executes a software that allows it to carry out its function or functions;

hardware and software in order to communicate with all of the other connected devices of said system through the system network;

hardware and software in order to ensure a repeater functionality in order to extend a range of at least one signal over a transmission support of the system network in order to provide interconnection of the connected devices;

hardware and software in order to ensure a gateway functionality in order to interconnect two sub-system networks each using a different protocol;

hardware and software in order to communicate with a remote terminal connected to the Internet, the remote terminals comprising one or more of such as Smartphones, touchscreen tablets, computers, or servers;

hardware and software in order to carry out its function or functions by using information communicated by other

connected devices;

hardware and software in order to carry out its function or functions by using the information or commands communicated by the remote terminals that are connected to the Internet;

hardware and software in order to transmit alert messages or information to the remote terminals; and

said alert method comprises:

closing the electric valve “A” and transmitting a “break” alert over the system network before ending the method;

checking that no user instruction is in progress and which ends the method otherwise;

a step that uses a template developed during a configuration in order to switch to the closing steps based on a determination that the residual flow rate is in the break alert zone or to switch to the checking step based on a determination that the residual flow rate is not in the break alert zone;

checking that no alert has already been sent;

closing alert steps wherein the connected device cuts off water at the outlet and transmit a closing alert over the system network before ending the method;

transmitting a “leak” alert over the system network before ending the method; and

switching to the closing alert steps based on a determination that alerts have already been transmitted or switch to the transmitting a leak alert step based on a determination that alerts have not been transmitted.