environmental conditions in a plurality of environmental sensors receiving, in a configurable processor coupled to the plurality of sensors, one or more signals from the plurality of sensors, processing, in the configurable processor, the one or more signals to generate environmental data representative of the environmental condition, and transmitting the data to a remote device. Advantageously, the electronic device may further include a coprocessor coupled to the configurable processor, wherein the coprocessor may be selectively coupled to one or more external sensor devices to receive environmental data. Preferably, at least one input/output module may be coupled to the coprocessor to receive data from one or more external computing devices. Advantageously, the method may further include at least one of coupling the device to a wired network or coupling the device to a wireless network. Advantageously, the method may further include analyzing the environmental data, and generating an alarm signal when the one or more environmental parameters exceed a threshold. Advantageously, the method may further include generating one or more command signals in response to the environmental data, and transmitting the one or more command signals to a transducer.

[0003a] In one aspect, there is provided a data acquisition device, comprising: a plurality of sensors to detect environmental conditions; a configurable processor coupled to the plurality of sensors, wherein the configurable processor is configured to: receive one or more signals from the plurality of sensors; process the one or more signals to generate environmental data representative of the environmental conditions; implement a device profile for web services (DPWS) interface; generate a graphical representation, wherein the graphical representation includes a first portion that displays a listing of devices, functions, and sensors of the plurality of sensors and wherein the graphical representation includes a second portion, wherein the second portion is configured to display a representation of a particular sensor of the plurality of sensors, display a portion of the environmental data associated with the particular sensor, and establish an interaction of the portion of the environmental data associated with the particular sensor with one or more devices from the listing, one or more functions from the listing, or combinations thereof; and make the

graphical representation available for access by one or more remote devices via the DPWS interface.

[0003b] In another aspect, there is provided a method to monitor environmental conditions, comprising: detecting, via a plurality of environmental sensors mounted on an electronic device, environmental conditions; receiving, at a configurable processor coupled to the plurality of sensors, one or more signals from the plurality of sensors; processing, via the configurable processor, the one or more signals to generate environmental data representative of the environmental conditions; implementing, via the configurable processor, a device profile for web services (DPWS) interface; generating, in the DPWS interface, a graphical representation, wherein the graphical representation includes a first portion that displays a listing of devices, functions, and sensors of the plurality of sensors and wherein the graphical representation includes a second portion, wherein the second portion is configured to display a representation of a particular sensor of the plurality of sensors, display a portion of the environmental data associated with the particular sensor, and establish an interaction of the portion of the environmental data associated with the particular sensor with one or more devices from the listing, one or more functions from the listing, or combinations thereof; and making the environmental data available for access by one or more remote devices via the DPWS interface.

[0004] Further areas of applicability will become apparent from the description provided herein. It should be understood that the description and specific examples are intended for purposes of illustration only and are not intended to limit the scope of the present disclosure

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] Embodiments of methods and systems in accordance with the teachings of the present disclosure are described in detail below with reference to the following drawings.

[0006] Fig. 1 is a schematic illustration of a system for environmental condition monitoring and reporting according to embodiments.

What is claimed is:

1. A data acquisition device, comprising:

a plurality of sensors to detect an environmental condition;

a configurable processor coupled to the plurality of sensors, wherein the configurable processor is configured to:

receive one or more signals from the plurality of sensors;

process the one or more signals to generate environmental data representative of the environmental condition; and

a first input/output module to transmit the data to a remote device.

2. The data acquisition device of claim 1, wherein the plurality of sensors comprises at least one of a light sensor, an accelerometer, a temperature sensor, a humidity sensor, and a position sensor.

3. The data acquisition device of claim 1, further comprising a coprocessor coupled to the configurable processor, wherein the coprocessor may be selectively coupled to one or more external sensor devices to receive environmental data.

4. The data acquisition device of claim 3, further comprising a second input/output module coupled to the coprocessor to receive data from one or more external computing devices.

5. The data acquisition device of claim 1, wherein the first input/output module comprises at least one of:

a first communication interface to couple the device to a wired network; and

a second communication interface to couple the device to a wireless network.

6. The data acquisition device of claim 1, wherein the processor is further configured to:

analyze the environmental data; and

generate an alarm signal when one or more environmental parameters exceed a threshold.

7. The data acquisition device of claim 1, wherein the processor is further configured to:

generate one or more command signals in response to the environmental data; and

transmit the one or more command signals to a transducer.

8. The data acquisition device of claim 1, wherein the plurality of sensors comprise a respective listing of capabilities; and wherein the processor is further configured to:

collect the respective listing of capabilities from the sensors; and

associate the respective listing of capabilities with a graphical representation of a respective sensor; and

make the graphical representation of the respective sensors available to external devices via an input/output interface.

9. The data acquisition device of claim 8, wherein the processor is further configured to:

present the graphical representation of the respective sensors available to external devices via an input/output interface;

receive an input from an external device, wherein the input provides at least one instruction regarding operations of the respective sensors; and

in response to the input, configure the respective sensors in accordance with the instructions.

10. The data acquisition device of claim 9, wherein the processor is further configured to implement peer-to-peer communication with at least one remote data acquisition device.

11. A method to monitor environmental conditions, comprising:

detecting, in a plurality of environmental sensors mounted on an electronic device, environmental conditions in a plurality of environmental sensors; and

receiving, in a configurable processor coupled to the plurality of sensors, one or more signals from the plurality of sensors;

processing, in the configurable processor, the one or more signals to generate environmental data representative of the environmental condition; and

transmitting the data to a remote device.

12. The method of claim 11, wherein the plurality of sensors comprises at least one of a light sensor, an accelerometer, a temperature sensor, a humidity sensor, and a position sensor.

13. The method of claim 11, wherein the plurality of sensors comprise a respective listing of capabilities; and further comprising:

collecting the respective listing of capabilities from the sensors; and

associating the respective listing of capabilities with a graphical representation of a respective sensor; and

making the graphical representation of the respective sensors available to external devices via an input/output interface.

14. The method of claim 13, further comprising:

presenting the graphical representation of the respective sensors available to external devices via an input/output interface;

receiving an input from an external device, wherein the input provides at least one instruction regarding operations of the respective sensors; and

in response to the input, configuring the respective sensors in accordance with the instructions.

15. The method of claim 14, wherein the processor is further configured to implement peer-to-peer communication with at least one remote data acquisition device.

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What is claimed is:

1. A data acquisition device, comprising:
a plurality of sensors to detect environmental conditions;
a configurable processor coupled to the plurality of sensors, wherein the configurable processor is configured to:
receive one or more signals from the plurality of sensors;
process the one or more signals to generate environmental data representative of the environmental conditions;
implement a device profile for web services (DPWS) interface;
generate a graphical representation, wherein the graphical representation includes a first portion that displays a listing of devices, functions, and sensors of the plurality of sensors and wherein the graphical representation includes a second portion, wherein the second portion is configured to display a representation of a particular sensor of the plurality of sensors, display a portion of the environmental data associated with the particular sensor, and establish an interaction of the portion of the environmental data associated with the particular sensor with one or more devices from the listing, one or more functions from the listing, or combinations thereof; and
make the graphical representation available for access by one or more remote devices via the DPWS interface.

2. The data acquisition device of claim 1, wherein the plurality of sensors comprises at least one of a light sensor, an accelerometer, a temperature sensor, a humidity sensor, and a position sensor.

3. The data acquisition device of claim 1, further comprising a coprocessor coupled to the configurable processor, wherein the coprocessor is configured to be selectively coupled to one or more external sensor devices to receive second environmental data.

4. The data acquisition device of claim 3, further comprising an input/output module coupled to the coprocessor to receive the second environmental data from one or more external computing devices.

5. The data acquisition device of claim 1, further comprising an input/output module to send the graphical representation to a remote device of the one or more remote devices, wherein the

input/output module comprises a first communication interface to couple the data acquisition device to a wired network or a second communication interface to couple the data acquisition device to a wireless network.

6. The data acquisition device of claim 1, wherein the configurable processor is further configured to:
analyze the environmental data; and
generate an alarm signal when a value of the environmental data associated with a sensor of the plurality of sensors satisfies a threshold.

7. The data acquisition device of claim 1, wherein the configurable processor is further configured to:
generate one or more command signals in response to the environmental data; and
transmit the one or more command signals to a transducer.

8. The data acquisition device of claim 1, wherein the configurable processor is configured to enable the graphical representation to be modified by enabling an item in the listing displayed in the first portion of the graphical representation to be dragged and dropped into the second portion of the graphical representation.

9. The data acquisition device of claim 1, wherein the configurable processor is further configured to:
receive an input from a first remote device of the one or more remote devices via the graphical representation, wherein the input provides at least one instruction regarding operations of the particular sensor; and
in response to the input, configure the particular sensor in accordance with the at least one instruction.

10. The data acquisition device of claim 9, wherein the configurable processor is further configured to implement peer-to-peer communication with the first remote device.

11. A method to monitor environmental conditions, comprising:
detecting, via a plurality of environmental sensors mounted on an electronic device, environmental conditions;

receiving, at a configurable processor coupled to the plurality of sensors, one or more signals from the plurality of sensors;

processing, via the configurable processor, the one or more signals to generate environmental data representative of the environmental conditions;

implementing, via the configurable processor, a device profile for web services (DPWS) interface;

generating, in the DPWS interface, a graphical representation, wherein the graphical representation includes a first portion that displays a listing of devices, functions, and sensors of the plurality of sensors and wherein the graphical representation includes a second portion, wherein the second portion is configured to display a representation of a particular sensor of the plurality of sensors, display a portion of the environmental data associated with the particular sensor, and establish an interaction of the portion of the environmental data associated with the particular sensor with one or more devices from the listing, one or more functions from the listing, or combinations thereof; and

making the environmental data available for access by one or more remote devices via the DPWS interface.

12. The method of claim 11, wherein the plurality of environmental sensors comprises at least one of a light sensor, an accelerometer, a temperature sensor, a humidity sensor, and a position sensor.

13. The method of claim 11, wherein the electronic device further comprises a coprocessor coupled to the configurable processor, wherein the coprocessor may is be selectively coupled to one or more external sensor devices to receive second environmental data.

14. The method of claim 13, wherein at least one input/output module is coupled to the coprocessor to receive the second environmental data from one or more external computing devices.

15. The method of claim 11, further comprising coupling the electronic device to a wired network, coupling the electronic device to a wireless network, or both.

16. The method of claim 11, further comprising:

analyzing the environmental data; and

generating an alarm signal when a value of the environmental data associated with a sensor of the plurality of sensors satisfies a threshold.

17. The method of claim 11, further comprising:
generating one or more command signals in response to the environmental data; and
transmitting the one or more command signals to a transducer.

18. The method of claim 11, further comprising modifying the graphical representation in response to user input that drags an item from the listing to the second portion and drops the item in the second portion.

19. The method of claim 11, further comprising:
receiving an input from a first remote device of the one or more remote devices via the graphical representation, wherein the input provides at least one instruction regarding operations of the particular sensor; and
in response to the input, configuring the particular sensor in accordance with the at least one instruction.

20. The method of claim 19, wherein the configurable processor is further configured to implement peer-to-peer communication with the first remote device.