

integrating the data from the at least one local sensor with the relevant information by the at least one wireless networked computer; and

transmitting resulting information from
5 integrating the data from the at least one local sensor with the relevant information to a vehicle data recorder by the at least one wireless networked computer, wherein the resulting information is used to monitor the component associated with the at least one wireless networked
10 computer.

In a third variant of the embodiment, the customized information message is transmitted based on predetermined criterion, the predetermined criterion comprising a rate of transmission based on the component
15 being monitored, a frequency of the relevant information being updated, an operational status of the component being monitored, and an operational status of the vehicle.

In a fourth variant of the embodiment, the vehicle is an airplane.

20 The variants of the embodiments may be combined.

According to a first aspect, there is provided a method for monitoring systems of a vehicle, comprising:
receiving data by a vehicle data recorder onboard the vehicle from a plurality of sensors associated with the
25 systems of the vehicle; determining, by a processor, relevant information from the received data that is used by each of a plurality of wireless networked computers onboard the vehicle based on at least a function performed by each wireless networked computer with respect to an associated
30 one of a multiplicity of components of the systems of the vehicle; formulating, by the processor, using a configuration table, a particular different customized information message for each of the plurality of wireless networked computers, wherein the configuration table

comprises: an identification of a particular wireless networked computer for each of the plurality of wireless networked computers; relevant information used by the particular wireless networked computer associated with the identification for each particular wireless networked computer; a condition or criteria associated with the use of the relevant information or operation of the particular wireless networked computer associated with the identification for each particular wireless networked computer; and a specification for formatting and transmitting the particular different customized information message associated with the identification for each particular wireless networked computer; and transmitting, by a transceiver, each particular different customized information message directly within the vehicle to different ones of the plurality of wireless networked computers designated to receive each particular different customized information message according to the configuration table.

According to a second aspect, there is provided a system for monitoring systems of a vehicle, comprising: a plurality of wireless networked computers onboard the vehicle; and a vehicle data recorder comprising: a processor, the processor being configured to: receive data from a plurality of sensors associated with the systems of the vehicle; determine relevant information from the received data that is used by each of the plurality of wireless networked computers based on at least a function performed by each wireless networked computer with respect to an associated one of a multiplicity of components of the systems of the vehicle; formulate, using a configuration table, a particular different customized information message for each of the plurality of wireless networked computers, wherein the configuration table comprises: an identification of a particular wireless networked computer for each of the

plurality of wireless networked computers; relevant information used by the particular wireless networked computer associated with the identification for each particular wireless networked computer; a condition or
5 criteria associated with the use of the relevant information or operation of the particular wireless networked computer associated with the identification for each particular wireless networked computer; and a specification for formatting and transmitting the particular different
10 customized information message associated with the identification for each particular wireless networked computer; and wherein the vehicle data recorder further comprises: a transceiver to transmit each particular different customized information message directly within the
15 vehicle to different ones of the plurality of wireless networked computers designated to receive each particular different customized information message according to the configuration table.

According to a third aspect, there is provided a
20 computer program product for monitoring systems of a vehicle, the computer program product comprising: a non-transitory computer readable storage medium having computer readable program code embodied therewith, the computer readable program code comprising: computer readable program
25 code configured to receive data from the plurality of sensors associated with the systems of the vehicle; computer readable program code configured to determine relevant information from the received data that is used by each of a plurality of wireless networked computers onboard the
30 vehicle based on at least a function performed by each wireless networked computer with respect to an associated one of a multiplicity of components of the systems of the vehicle; computer readable program code configured to formulate, using a configuration table, a particular

different customized information message for each of the plurality of wireless networked computers, wherein the configuration table comprises; an identification of a particular wireless networked computer for each of the plurality of wireless networked computers; relevant information used by the particular wireless networked computer associated with the identification for each particular wireless networked computer; a condition or criteria associated with the use of the relevant information or operation of the particular wireless networked computer associated with the identification for each particular wireless networked computer; and a specification for formatting and transmitting the particular different customized information message associated with the identification for each particular wireless networked computer; and computer readable program code configured to transmit each particular different customized information message directly within the vehicle to different ones of the plurality of wireless networked computers designated to receive each particular different customized information message according to the configuration table.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF DRAWINGS

The following detailed description of embodiments refers to the accompanying drawings, which illustrate specific embodiments of the disclosure. Other embodiments having different structures and operations do not depart from the scope of the present disclosure.

Figures 1A and 1B (collectively Figure 1) are a flow chart of an example of a method for generating and transmitting customized messages to different wireless networked computers of a vehicle in accordance with an embodiment of the present disclosure.

Figure 2 is an example of a configuration table for use in configuring customized information messages for

CLAIMS

1. A method for monitoring systems of a vehicle, comprising:
receiving data by a vehicle data recorder onboard the
5 vehicle from a plurality of sensors associated with the systems
of the vehicle;

determining, by a processor, relevant information from the
received data that is used by each of a plurality of wireless
networked computers onboard the vehicle based on at least a
10 function performed by each wireless networked computer with
respect to an associated one of a multiplicity of components of
the systems of the vehicle;

formulating, by the processor, using a configuration table,
a particular different customized information message for each
15 of the plurality of wireless networked computers, wherein the
configuration table comprises:

an identification of a particular wireless networked
computer for each of the plurality of wireless networked
computers;

20 relevant information used by the particular wireless
networked computer associated with the identification for
each particular wireless networked computer;

a condition or criteria associated with the use of the
relevant information or operation of the particular
25 wireless networked computer associated with the
identification for each particular wireless networked
computer; and

a specification for formatting and transmitting the
particular different customized information message
30 associated with the identification for each particular
wireless networked computer; and

transmitting, by a transceiver, each particular different customized information message directly within the vehicle to different ones of the plurality of wireless networked computers designated to receive each particular different customized information message according to the configuration table.

2. The method of claim 1, further comprising:
processing the data to provide the relevant information;
and

storing the relevant information by the vehicle data recorder.

3. The method of claim 2, further comprising cataloguing the relevant information based on at least one of a source of the data from which the relevant information is processed, a use of the relevant information, and which ones of the plurality of wireless networked computers use the relevant information.

4. The method of claim 1, wherein the configuration table further comprises an identification of any wireless networked computer that receives at least a subset of information in one of the customized information messages transmitted directly within the vehicle from another one of the wireless networked computers.

5. The method of claim 2, further comprising retrieving the relevant information by a parameter broadcast controller of the vehicle data recorder to formulate each particular different customized information message for each of the plurality of wireless networked computers.

6. The method of claim 5, further comprising parsing the relevant information by the parameter broadcast controller to be transmitted in the customized information message.

5 7. The method of claim 1, wherein a certain wireless networked computer executes a power saving function based on the particular different customized information message received by the certain wireless networked computer, the power saving function comprising at least one of an extended sleep mode
10 duration, a reduced sensor sample rate, an extended transmission interval, a reduced transmission power level, a reduced processor clock speed, a reduced amplifier setting, sleeping and turning off one or more selected components of the certain wireless networked computer.

15

8. The method of claim 1, further comprising receiving each particular different customized information message by different ones of the plurality of wireless networked computers designated to receive each particular different customized information
20 message.

9. The method of claim 8, further comprising forming and transmitting a secondary customized message comprising a subset of the information in a certain customized information message
25 to an associated wireless networked computer by a wireless networked computer that received the certain customized information message.

10. The method of claim 8, further comprising:
30 receiving data from at least one local sensor by at least one wireless networked computer associated with the at least one local sensor;

integrating the data from the at least one local sensor with the relevant information by the at least one wireless networked computer; and

transmitting resulting information from integrating the
5 data from the at least one local sensor with the relevant information to the vehicle data recorder by the at least one wireless networked computer, wherein the resulting information is used to monitor the component associated with the at least one wireless networked computer.

10

11. The method of claim 1, wherein each particular different customized information message is transmitted based on predetermined criterion, the predetermined criterion comprising a rate of transmission based on the component being monitored, a
15 frequency of the relevant information being updated, an operational status of the component being monitored, and an operational status of the vehicle.

12. The method of claim 1, wherein the vehicle is an airplane.

20

13. A system for monitoring systems of a vehicle, comprising:
a plurality of wireless networked computers onboard the vehicle; and

a vehicle data recorder comprising:

25

a processor, the processor being configured to:
receive data from a plurality of sensors associated with the systems of the vehicle;
determine relevant information from the received data that is used by each of the plurality of wireless
30 networked computers based on at least a function performed by each wireless networked computer with

respect to an associated one of a multiplicity of components of the systems of the vehicle; formulate, using a configuration table, a particular different customized information message for each of the plurality of wireless networked computers, wherein the configuration table comprises:
an identification of a particular wireless networked computer for each of the plurality of wireless networked computers;
relevant information used by the particular wireless networked computer associated with the identification for each particular wireless networked computer;
a condition or criteria associated with the use of the relevant information or operation of the particular wireless networked computer associated with the identification for each particular wireless networked computer; and
a specification for formatting and transmitting the particular different customized information message associated with the identification for each particular wireless networked computer; and wherein the vehicle data recorder further comprises:

a transceiver to transmit each particular different customized information message directly within the vehicle to different ones of the plurality of wireless networked computers designated to receive each particular different customized information message according to the configuration table.

14. The system of claim 13, wherein the processor processes the data to provide the relevant information and stores the relevant information in a data store.

15. The system of claim 13, wherein each wireless networked computer comprises:

a transceiver for receiving the particular different customized information message designated for the wireless networked computer;

a port for receiving data from at least one local sensor associated with the wireless networked computer; and

a processor for integrating the data from the at least one local sensor with the relevant information,

wherein the transceiver transmits resulting information from integrating the data from the at least one local sensor with the relevant information to the vehicle data recorder, the resulting information being used to monitor the component associated with the wireless networked computer.

16. The system of claim 15, further comprising an associated wireless networked computer that receives a secondary customized message comprising a subset of the relevant information from another wireless networked computer designated to receive the customized information message.

17. The system of claim 13, wherein the vehicle is an airplane.

18. A computer program product for monitoring systems of a vehicle, the computer program product comprising:

a non-transitory computer readable storage medium having computer readable program code embodied therewith, the computer readable program code comprising:

computer readable program code configured to receive data from the plurality of sensors associated with the systems of the vehicle;

computer readable program code configured to determine relevant information from the received data that is used by each of a plurality of wireless networked computers onboard the vehicle based on at least a function performed by each wireless networked computer with respect to an associated one of a multiplicity of components of the systems of the vehicle;

computer readable program code configured to formulate, using a configuration table, a particular different customized information message for each of the plurality of wireless networked computers, wherein the configuration table comprises;

an identification of a particular wireless networked computer for each of the plurality of wireless networked computers;

relevant information used by the particular wireless networked computer associated with the identification for each particular wireless networked computer;

a condition or criteria associated with the use of the relevant information or operation of the particular wireless networked computer associated with the identification for each particular wireless networked computer; and

a specification for formatting and transmitting the particular different customized information message associated with the identification for each particular wireless networked computer; and

computer readable program code configured to transmit each particular different customized information message directly within the vehicle to different ones of the plurality of wireless networked computers designated to receive each particular different customized information message according to the configuration table.

19. The method of claim 1, wherein the vehicle is an airplane, the method further comprising formatting and transmitting each particular different customized information message in response to a particular state or condition of the airplane.

5

20. The method of claim 1, wherein formatting and transmitting each particular different customized information message comprises formatting and transmitting each particular different customized information message at a predetermined frequency in response to the state or condition of the airplane.

10

21. The method of claim 1, wherein each particular different customized information message comprises the relevant information and a command for performing a function by the wireless networked computer designated to receive the particular different customized information message, the function being performed by the wireless networked computer is with respect to the associated one of the multiplicity of components of the systems of the vehicle.

20

22. The method of claim 1, wherein each of the plurality of wireless networked computers comprises a port that is electrically connectable to a local sensor associated with a particular system of the vehicle.

25

23. The method of claim 1, further comprising generating the configuration table, wherein generating the configuration table comprises providing a first column, the first column comprising, in each row of a plurality of rows of the configuration table, the identification of the particular wireless networked computer of the plurality of wireless networked computers.

30

24. The method of claim 23, wherein generating the configuration table comprises providing a second column, the second column comprising, in each row of the plurality of rows, the relevant information used by the particular wireless
5 networked computer identified in the first column of a corresponding row.

25. The method of claim 23, wherein generating the configuration table comprises providing another column, the
10 other column comprising, in each row of the plurality of rows, the condition or criteria associated with the particular wireless networked computer identified in the first column of the corresponding row.

15 26. The method of claim 23, wherein generating the configuration table comprises providing another column, the other column comprising, in each row of the plurality of rows, the specification for formatting and transmitting the particular different customized information message to the particular
20 wireless networked computer identified in the first column of corresponding row.

27. The method of claim 24, wherein generating the configuration table comprises:

25 providing a third column, the third column comprising, in each row of the plurality of rows, the condition or criteria associated with the particular wireless networked computer identified in the first column of the corresponding row; and

30 providing a fourth column, the fourth column comprising, in each row of the plurality of rows, the specification for formatting and transmitting the particular different customized

information message to the particular wireless networked computer identified in the first column of corresponding row.

28. The method of claim 1, wherein transmitting each particular
5 different customized information message comprises transmitting each particular different customized message according to a rate or frequency specified in the configuration table.

29. The method of claim 1, further comprising:
10 transmitting each particular different customized information message comprises transmitting each particular different customized message according to a rate or frequency specified in the configuration table; and
updating the relevant information based on a frequency
15 specified in the configuration table.