

vehicle's control system may detect an event, determine information pertaining to the aerial vehicle's operation which should be communicated, determine information that should be communicated based on the data associated with that event, and autonomously communicate that information to manned aerial vehicles, related legacy support system entities, unmanned aerial systems, and/or wholly or partially computer-automated air traffic control systems, in language that is understood by the recipient or recipients.

[6a] According to a first aspect of the present invention, there is provided a method for operating an unmanned aerial vehicle comprising:

- detecting, by a control system of the unmanned aerial vehicle, data associated with an event;

- determining, by the control system of the unmanned aerial vehicle, that information related to the event should be communicated;

- determining, by the control system of the unmanned aerial vehicle, a target aerial vehicle that is to receive the information;

- identifying, by the control system of the unmanned aerial vehicle, whether the target aerial vehicle is human operated or is unmanned;

- selecting, by the control system of the unmanned aerial vehicle, a natural language associated with human-operated target aerial vehicles if the target aerial vehicle is identified as human operated, or a machine language associated with unmanned aerial vehicles if the target aerial vehicle is identified as unmanned;

- generating, by the control system of the unmanned aerial vehicle, a message expressing the information related to the event in the selected language; and

- transmitting, by the control system of the unmanned aerial vehicle, the message to the target aerial vehicle.

[6b] According to a second aspect of the present invention, there is provided a system comprising:

- at least one target aerial vehicle; and

- at least one aerial vehicle with an autonomous aerial communications system, wherein the autonomous communications system comprises:

- at least one interface for communication with other aerial vehicles;

and a control system configured to:

- detect data associated with an event;
- determine that information related to the event should be communicated;
- determine the target aerial vehicle that is to receive the information;
- identify whether the target aerial vehicle is human operated or is unmanned;
- select, from a plurality of available languages, a natural language associated with human-operated target aerial vehicles if the target aerial vehicle is identified as human operated, or a machine language associated with unmanned aerial vehicles if the target aerial vehicle is identified as unmanned;
- generate a message expressing the information related to the event in the selected language; and transmit the message to the target aerial vehicle.

[6c] According to a third aspect of the present invention, there is provided a non-transitory computer readable medium having stored therein instructions executable by one or more processors to cause a control system to perform functions comprising:

- detecting data associated with an event;
- determining that information related to the event should be communicated;
- determining a target aerial vehicle that is to receive the information;
- identifying whether the target aerial vehicle is human operated or is unmanned;
- selecting a natural language associated with human-operated target aerial vehicles if the target aerial vehicle is identified as human operated, or a machine language associated with unmanned aerial vehicles if the target aerial vehicle is identified as unmanned;
- generating a message expressing the information related to the event in the selected language; and
- transmitting the message to the target aerial vehicle.

[6d] According to a fourth aspect of the present invention, there is provided a method for operating an aerial vehicle comprising:

- detecting, by a control system of the aerial vehicle, data associated with an event;
- determining, by the control system, that information related to the event should be communicated;
- identifying, by the control system, one or more operational parameters of a target recipient, wherein the one or more operational parameters comprise at least one parameter

indicative of whether the target recipient is human operated, computer operated, or both;

selecting, by the control system, from a plurality of available languages, one or more languages associated with the one or more identified operational parameters, wherein the plurality of languages comprises at least one natural language and at least one machine language;

generating, by the control system, a message expressing the information related to the event in the selected language; and

transmitting, by the control system, the generated message.

[7] There is disclosed a method. The method involves detecting, by a control system of the aerial vehicle, data associated with an event. The method also involves determining, by the control system, that information related to the event should be communicated. The method further involves determining, by the control system, a target aerial vehicle for the information. The method additionally involves identifying, by the control system, one or more operational parameters of the target aerial vehicle, wherein the one or more operational parameters comprise at least one parameter indicative of whether the target aerial vehicle is human operated, computer operated, or both. The method also involves selecting, by the control system, from a plurality of available languages, a language associated with the target aerial vehicle, wherein the plurality of languages comprises at least one natural language associated with human-operated target aerial vehicles and at least one machine language associated with the computer-operated target aerial vehicles. The method further involves generating, by the control system, a message expressing the information related to the event in the language associated with the target aerial vehicle. The method additionally involves transmitting, by the control system, the message to the target aerial vehicle.

[8] There is disclosed a system. The system includes at least one target aerial vehicle and at least one aerial vehicle with an autonomous aerial communications system, wherein the autonomous aerial communications system comprises at least one interface for communication with other aerial vehicles and a control system. The control system is configured to detect data associated with an event. The control system is also configured to determine that information related to the event should be communicated. The control system is further configured to determine the target aerial vehicle for receiving the information. The control system is additionally configured to identify one or more operational parameters of the target aerial vehicle, wherein at least one operational parameter indicates whether the target aerial vehicle is

human operated, computer operated, or both. The control system is also configured to select, from a plurality of available languages, a language associated with the target aerial vehicle, wherein the plurality of languages comprises at least one natural language associated with human-operated target aerial vehicles and at least one machine language associated with the computer-operated target aerial vehicles. The control system is further configured to generate a message expressing the information related to the event in the language associated with the target aerial vehicle. The control system is additionally configured to transmit the message to the target aerial vehicle.

[9] There is disclosed a non-transitory computer readable medium. The non-transitory computer readable medium has stored therein instructions executable by one or more processors to cause a control system to perform functions. The functions include detecting data associated with an event. The functions also include determining that information related to the event should be communicated. The functions further include determining a target aerial vehicle for the information. The functions additionally include identifying one or more operational parameters of the target aerial vehicle, wherein the one or more operational parameters comprise at least one parameter indicative of whether the target aerial vehicle is human operated, computer operated, or both. The functions also include selecting from a plurality of available languages, a language associated with the target aerial vehicle, wherein the plurality of languages comprises at least one natural language associated with human-operated target aerial vehicles and at least one machine language associated with the computer-operated target aerial vehicles. The functions further include generating a message expressing the information related to the event in the language associated with the target aerial vehicle. The functions additionally include transmitting the message to the target aerial vehicle.

[10] There is disclosed a method. The method involves detecting, by a control system of the aerial vehicle, data associated with an event. The method also involves determining, by the control system, that information related to the event should be communicated. The method further involves determining, by the control system, a target recipient for the information. The method additionally involves identifying, by the control system, one or more operational parameters of the target recipient, wherein the one or more operational parameters comprise at least one parameter indicative of whether the target recipient is human operated, computer operated, or both. The method also involves selecting,

CLAIMS

1. A method for operating an unmanned aerial vehicle comprising:

detecting, by a control system of the unmanned aerial vehicle, data associated with an event;

determining, by the control system of the unmanned aerial vehicle, that information related to the event should be communicated;

determining, by the control system of the unmanned aerial vehicle, a target aerial vehicle that is to receive the information;

identifying, by the control system of the unmanned aerial vehicle, whether the target aerial vehicle is human operated or is unmanned;

selecting, by the control system of the unmanned aerial vehicle, a natural language associated with human-operated target aerial vehicles if the target aerial vehicle is identified as human operated, or a machine language associated with unmanned aerial vehicles if the target aerial vehicle is identified as unmanned;

generating, by the control system of the unmanned aerial vehicle, a message expressing the information related to the event in the selected language; and

transmitting, by the control system of the unmanned aerial vehicle, the message to the target aerial vehicle.

2. The method according to claim 1, wherein identifying, by the control system, whether the target aerial vehicle is human operated or unmanned comprises referring to a repository of operational parameters which may be ascribed to a class of entities of which the target aerial vehicle may be a part.

3. The method according to claim 1, wherein the natural language associated with the human-operated target aerial vehicle comprises at least one natural language from a set of multiple natural-language communication capabilities.

4. The method according to claim 1, wherein the machine language associated with the computer-operated target aerial vehicle comprises at least one computer language from a set of multiple computer-language communication capabilities.

5. The method according to claim 1, wherein determining the target aerial vehicle comprises determining, by the control system, from a plurality of target aerial vehicles, at least one target aerial vehicle.

6. The method according to claim 5, wherein detecting the data associated with the event comprises detecting, by the control system, data associated with at least one natural language or machine language input communication.

7. The method according to claim 6, wherein detecting the data associated with the input communication comprises detecting, by the control system, data associated with flight management parameters of the unmanned aerial vehicle, the target aerial vehicle, or both.

8. The method according to claim 7, wherein determining that the information related to the event should be communicated comprises determining, by the control system, a proposed flight path for the unmanned aerial vehicle, the target aerial vehicle, or both.

9. The method according to claim 8, wherein generating the message comprises generating, by the control system, a message inviting one or more aerial vehicles to a negotiation session, and wherein transmitting the message comprises establishing, by the control system, a negotiation session with one or more target aerial vehicles to determine the acceptability of the proposed flight paths of the unmanned aerial vehicle, the target aerial vehicle, or both.

10. The method according to claim 9, wherein the entity approving the results of the negotiation session is human operated, computer operated, or both.

11. The method according to claim 10, wherein the entity approving the results of the negotiation session, the parties to the negotiation session, or both, transmit the content and/or resolution of the negotiation session to the parties to the negotiation session, a centralized database, or other entities.

12. The method according to claim 9, wherein the target aerial vehicle includes at least one

related terrestrial support system entity operating within a network, comprising a wholly or partially computer-automated air traffic control system, a human-operated air traffic controller station, or both.

13. The method according to claim 12, wherein the entity approving the results of the negotiation session is human operated, computer operated, or both.

14. The method according to claim 13, wherein the entity approving the results of the negotiation session, the parties to the negotiation session, or both, transmit the content and/or resolution of the negotiation session to the parties to the negotiation session, a centralized database, and/or other entities.

15. A system comprising:

- at least one target aerial vehicle; and

- at least one aerial vehicle with an autonomous aerial communications system, wherein the autonomous communications system comprises:

 - at least one interface for communication with other aerial vehicles;

and a control system configured to:

- detect data associated with an event;

- determine that information related to the event should be communicated;

- determine the target aerial vehicle that is to receive the information;

- identify whether the target aerial vehicle is human operated or is unmanned;

- select, from a plurality of available languages, a natural language associated with human-operated target aerial vehicles if the target aerial vehicle is identified as human operated, or a machine language associated with unmanned aerial vehicles if the target aerial vehicle is identified as unmanned;

- generate a message expressing the information related to the event in the selected language; and transmit the message to the target aerial vehicle.

16. A non-transitory computer readable medium having stored therein instructions executable by one or more processors to cause a control system to perform functions comprising:

- detecting data associated with an event;

- determining that information related to the event should be communicated;

determining a target aerial vehicle that is to receive the information;
identifying whether the target aerial vehicle is human operated or is unmanned;
selecting a natural language associated with human-operated target aerial vehicles if the target aerial vehicle is identified as human operated, or a machine language associated with unmanned aerial vehicles if the target aerial vehicle is identified as unmanned;
generating a message expressing the information related to the event in the selected language; and
transmitting the message to the target aerial vehicle.

17. A method for operating an aerial vehicle comprising:

detecting, by a control system of the aerial vehicle, data associated with an event;
determining, by the control system, that information related to the event should be communicated;
identifying, by the control system, one or more operational parameters of a target recipient, wherein the one or more operational parameters comprise at least one parameter indicative of whether the target recipient is human operated, computer operated, or both;
selecting, by the control system, from a plurality of available languages, one or more languages associated with the one or more identified operational parameters, wherein the plurality of languages comprises at least one natural language and at least one machine language;
generating, by the control system, a message expressing the information related to the event in the selected language; and
transmitting, by the control system, the generated message.

18. The method according to claim 17, wherein the one or operational parameters are associated with a wholly or partially computer-automated air traffic control system, a human-operated air traffic controller station, or both.

19. The method according to claim 17, wherein the one or operational parameters are associated with a legacy aerial vehicle.

20. The method according to claim 17, wherein the one or operational parameters are associated with an unmanned aerial system.