CLAIMS

1. An apparatus for providing communications between remote pilots of unmanned aircraft and air traffic controllers, the apparatus comprising a gateway having:

a user management unit configured to receive a user message from a software application corresponding to a remote pilot, and configured to authenticate the remote pilot based on the user message or the corresponding data connection;

an application programming interface configured to generate an access token if the remote pilot is authenticated, and to make a call to an application programming interface endpoint of an air traffic controller communications network;

a Controller Pilot Data Link Communications emulator configured to parse the user message and to convert it into a Controller Pilot Data Link Communications compliant format; and

a datalink connector configured to push the converted user message and the access token to the application programming interface endpoint of the air traffic controller communications network via a ground network;

wherein the datalink connector is further configured to receive a message from the air traffic controller communications network and the user management unit is further configured to communicate the message to the software application.

2. The apparatus of claim 1, further comprising an aircraft management unit configured to receive unmanned aircraft data and to determine the air traffic controller network, of a plurality of air traffic controller networks, that the user message relates to, based on the unmanned aircraft data.

3. The apparatus of claim 2, wherein the unmanned aircraft data comprises one or more of location data of the unmanned aircraft, flight plan data corresponding to the unmanned aircraft, and application programming interface call data.

4. The apparatus of claim 3, wherein the aircraft management unit processes the unmanned aircraft data to verify whether the unmanned aircraft data corresponds to a valid state of a datalink state machine.

5. The apparatus of claim 4, wherein the aircraft management unit verifies the unmanned aircraft data by rules based validation of location data of the unmanned aircraft.

6. The apparatus of any preceding claim, wherein the user message is a request to insert a data item into, or retrieve a data item from, the air traffic control communications network.

7. The apparatus of any preceding claim, wherein the Controller Pilot Data Link Communications emulator is configured to convert the message received from the air traffic controller communications network into a format compliant with the remote pilot software application.

8. The apparatus of any preceding claim, wherein the user management unit is configured to authenticate the remote pilot based on the use of a dedicated virtual private network channel or a private physical connection.

9. The apparatus of any preceding claim, wherein the remote pilot software application is a web application, and the gateway is configured to communicate with the web application.

10. The apparatus of any preceding claim, wherein the apparatus is configured to connect to a web server of an aviation authority corresponding to the air traffic controller communications network, and to forward copies of all data passing through the gateway to the web server of the aviation authority.

11. A method for providing communications between remote pilots of unmanned aircraft and air traffic controllers, the method comprising:

receiving, at a user management unit, a user message from a software application corresponding to a remote pilot;

authenticating, at the user management unit, the remote pilot based on the user message or the corresponding data connection;

generating, at an application programming interface, an access token if the remote pilot is authenticated;

calling, by the application programming interface, an application programming interface endpoint of an air traffic controller communications network;

parsing, by a Controller Pilot Data Link Communications emulator, the user message;

converting, by the Controller Pilot Data Link Communications emulator, the user message into a Controller Pilot Data Link Communications compliant format;

pushing, by a datalink connector, the converted user message and the access token to the application programming interface endpoint of the air traffic controller communications network via a ground network;

receiving, at the datalink connector, a message from the air traffic controller communications network; and

communicating, by the user management unit, the message to the software application.

12. The method of claim 11, further comprising:

receiving, by an aircraft management unit, unmanned aircraft data; and

determining, by the aircraft management unit, the air traffic controller network, of a plurality of air traffic controller networks, that the user message relates to, based on the unmanned aircraft data.

13. The method of claim 12, wherein the unmanned aircraft data comprises one or more of location data of the unmanned aircraft, flight plan data corresponding to the unmanned aircraft, and application programming interface call data.

14. The method of claim 13, further comprising processing, by the aircraft management unit, the unmanned aircraft data to verify whether the unmanned aircraft data corresponds to a valid state of a datalink state machine.

15. The method of claim 14, wherein the unmanned aircraft data is verified by rules based validation of location data of the unmanned aircraft.

16. The method of any one of claims 11 to 15, wherein the user message is a request to insert a data item into, or retrieve a data item from, the air traffic control communications network.

17. The method of any one of claims 11 to 16, further comprising converting, by the Controller Pilot Data Link Communications emulator, the message received from the air traffic controller communications network into a format compliant with the remote pilot software application.

18. The method of any one of claims 11 to 17, wherein the remote pilot is authenticated based on the use of a dedicated virtual private network channel or a private physical connection.

19. The method of any one of claims 11 to 18, wherein the remote pilot software application is a web application, and the gateway communicates with the web application.

20. The method of any one of claims 11 to 19, further comprising connecting to a web server of an aviation authority corresponding to the air traffic controller communications network, and forwarding copies of all data passing through the gateway to the web server of the aviation authority.