Claims

1. A method for aerial on-demand mobility (ODM) scheduling of electric propelled aircraft, comprising:

determining, in a processor of a vertiport management platform computing device, vertiport capacity for one or more vertiports;

determining, in the processor of the vertiport management platform computing device, one or more requested flights;

determining, in the processor of the vertiport management platform computing device, one or more available electric propelled aircraft;

receiving, in the processor of the vertiport management platform computing device, sensor data from sensors at the one or more vertiports, wherein the sensor data comprises real-time local airspace pictures at the one or more vertiports;

assigning, in the processor of the vertiport management platform computing device, the one or more requested flights to one or more vertiport spots of the one or more vertiports and selected ones of the one or more available electric propelled aircraft, wherein the assigning is based at least in part on the real-time local airspace pictures at the one or more vertiports; and

sending, by the processor of the vertiport management platform computing device, the assignments to each respective one of the one or more vertiports and one or more available electric propelled aircraft.

2. The method of claim 1, wherein the processor of the vertiport management platform computing device determines the vertiport capacity based at least in part on a slack capacity setting for the vertiport.

3. The method of claim 2, wherein the slack capacity setting is updated based on a capacity threshold determined based at least in part on a vertiport current status and vertiport historical performance data.

4. The method of claim 3, wherein the vertiport current status is based on the sensor data received by the processor of the vertiport management platform computing device from the vertiport.

5. The method of claim 4, wherein the sensor data is generated by one or more of a radar, a lidar, a camera, a weather sensor, or an electric charging sensor.

6. The method of claim 5, wherein the processor of the vertiport management platform computing device receives requested flight information from one or more mobility service providers.

7. The method of claim 6, wherein the processor of the vertiport management platform computing device receives available electric propelled aircraft information from aircraft fleet operators.

8. The method of claim 7, wherein the available electric propelled aircraft are electric vertical take-off and landing (eVTOL) aircraft.

9. The method of claim 1, wherein the assigning is based at least in part on economic factors associated with vertiport operators, aircraft fleet operators, and mobility service providers.

10. The method of claim 9, wherein the economic factors include one or more of spot market bids and pre-contracted flight agreements.

11. The method of claim 1, wherein the assigning is based at least in part on information received from one or more of vertiport operators, mobility service providers, aircraft fleet operators, air traffic controllers, weather services, and passengers.

12. The method of claim 11, wherein the information from passengers includes vertiport reputation related rankings.

13. The method of claim 1, wherein the assigning is based at least in part on machine learning algorithms applied to historical vertiport operations data.

14. The method of claim 1, further comprising filing, by the processor of the vertiport management platform computing device, flight plans with a government airspace controller reflecting the assignments to each respective one of the one or more vertiports and one or more available electric propelled aircraft.

15. The method of claim 14, wherein the processor of the vertiport management platform computing device tracks and stores all data for use in compliance with government airspace controller requirements.

16. The method of claim 1, wherein the assigning is based at least in part on predications of vertiport operations based on historical vertiport operations data and historical local airspace data.

17. A vertiport management platform computing device, comprising:

a processor configured with processor-executable instructions to perform operations comprising:

determining vertiport capacity for one or more vertiports;

determining one or more requested flights;

determining one or more available electric propelled aircraft;

receiving sensor data from sensors at the one or more vertiports, wherein the sensor data comprises real-time local airspace pictures at the one or more vertiports;

assigning the one or more requested flights to one or more vertiport spots of the one or more vertiports and selected ones of the one or more available electric propelled aircraft; and

sending the assignments to each respective one of the one or more vertiports and one or more available electric propelled aircraft,

wherein the processor is configured with processor-executable instructions to perform operations such that the assigning is based at least in part on the real-time local airspace pictures at one or more vertiports.

18. The vertiport management platform computing device of claim 17, wherein the processor is configured with processor-executable instructions to perform operations such that the vertiport capacity is determined based at least in part on a slack capacity setting for the vertiport.

19. The vertiport management platform computing device of claim 18, wherein the processor is configured with processor-executable instructions to perform operations such that the slack capacity setting is updated based on a capacity threshold determined based at least in part on a vertiport current status and vertiport historical performance data.

20. The vertiport management platform computing device of claim 19, wherein the processor is configured with processor-executable instructions to perform operations such that the vertiport current status is based on the sensor data received by the vertiport management platform computing device from the vertiport.

21. The vertiport management platform computing device of claim 20, wherein the processor is configured with processor-executable instructions to perform operations such that the sensor data is generated by one or more of a radar, a lidar, a camera, a weather sensor, or an electric charging sensor.

22. The vertiport management platform computing device of claim 21, wherein the processor is configured with processor-executable instructions to perform operations such that requested flight information is received from one or more mobility service providers.

23. The vertiport management platform computing device of claim 22, wherein the processor is configured with processor-executable instructions to perform operations such that available electric propelled aircraft information is received from aircraft fleet operators.

24. The vertiport management platform computing device of claim 23, wherein the processor is configured with processor-executable instructions to perform operations such that the available electric propelled aircraft are electric vertical take-off and landing (eVTOL) aircraft.

25. The vertiport management platform computing device of claim 17, wherein the processor is configured with processor-executable instructions to perform operations such that the assigning is based at least in part on economic factors associated with vertiport operators, aircraft fleet operators, and mobility service providers.

26. The vertiport management platform computing device of claim 25, wherein the processor is configured with processor-executable instructions to perform operations such that the economic factors include one or more of spot market bids and pre-contracted flight agreements.

27. The vertiport management platform computing device of claim 17, wherein the processor is configured with processor-executable instructions to perform operations such that the assigning is based at least in part on information received from one or more of vertiport operators, mobility service providers, aircraft fleet operators, air traffic controllers, weather services, and passengers.

28. The vertiport management platform computing device of claim 27, wherein the processor is configured with processor-executable instructions to perform operations such that the information from passengers includes vertiport reputation related rankings.

29. The vertiport management platform computing device of claim 17, wherein the processor is configured with processor-executable instructions to perform operations such that the assigning is based at least in part on machine learning algorithms applied to historical vertiport operations data.

30. The vertiport management platform computing device of claim 17, wherein the processor is configured with processor-executable instructions to perform operations further comprising filing flight plans with a government airspace controller reflecting the assignments to each respective one of the one or more vertiports and one or more available electric propelled aircraft.

31. The vertiport management platform computing device of claim 30, wherein the processor is configured with processor-executable instructions to perform operations such that all data is tracked and stored for use in compliance with government airspace controller requirements.

32. The vertiport management platform computing device of claim 17, wherein the processor is configured with processor-executable instructions to perform operations such that the assigning is based at least in part on predications of vertiport operations based on historical vertiport operations data and historical local airspace data.

33. A non-transitory processor readable media having stored thereon processor-executable instructions configured to cause a processor of a vertiport management platform computing device to perform operations comprising:

determining vertiport capacity for one or more vertiports;

determining one or more requested flights;

determining one or more available electric propelled aircraft;

receiving sensor data from sensors at the one or more vertiports, wherein the sensor data comprises real-time local airspace pictures at the one or more vertiports;

assigning the one or more requested flights to one or more vertiport spots of the one or more vertiports and selected ones of the one or more available electric propelled aircraft; and

sending the assignments to each respective one of the one or more vertiports and one or more available electric propelled aircraft,

wherein the stored processor-executable instructions are configured to cause a processor to perform operations such that the assigning is based at least in part on the real-time local airspace pictures at the one or more vertiports.