[0005a]

In a first aspect, the present disclosure provides a system for setting a 3D flight plan route of an unmanned aerial vehicle, the system comprising: a horizontal-plane position data input section that inputs data indicating a scheduled flight route of the unmanned aerial vehicle on a horizontal plane as horizontal-plane data on the flight plan route; a height reference value input section that acquires a height reference value indicating an elevation of a ground surface under each of a plurality of positions on the flight plan route by reading from a geographic database; a proximate place identification section that identifies, on any entity on the ground surface, a proximate place at which a distance from the flight plan route is equal to or less than a predetermined safe distance; a flight plan route altitude determination section that determines values obtained by adding flight altitudes corresponding to the positions to the height reference values, respectively, as altitude data on the flight plan route; a flight plan route correction section that, when the proximate place is identified by the proximate place identification section, corrects the flight plan route such that the proximate place is avoided; a 3D display section that causes the flight plan route to be three-dimensionally displayed in a screen, wherein the 3D display section causes the proximate place to be further displayed in a superimposed manner and in a distinguishable form, and wherein when the proximate place is identified by the proximate place identification section, the flight plan route correction section corrects the flight plan route such that the proximate place is circumvented on the horizontal plane.

[0005b]

In a second aspect, the present disclosure provides a computer program that implements the system according to the first aspect when the computer program is executed by a computer.

[0006]

The present disclosure is made in light of the above-described

problems and has characteristics as follows. Specifically, the present disclosure is characterized by, in a system for setting a 3D flight plan route of an unmanned aerial vehicle, inputting data indicating a scheduled flight route of the unmanned aerial vehicle on a horizontal plane; acquiring a height reference value indicating an elevation of a surface under each of a plurality of positions on the flight plan route; and determining values obtained by adding flight altitudes corresponding to the positions to the height reference values, respectively, as altitude data on the flight plan route, may include a component that reads, from a geographic database, an elevation of a ground surface under each of the plurality of positions on the flight plan route in the horizontal plane as the height reference value, may include a component that identifies, on any entity on the ground surface, a proximate place at which a distance from the flight plan route is equal to or less than a predetermined safe distance, may include a component that causes the flight plan route to be three-dimensionally displayed in a screen, and may include a component that causes the proximate place to be further displayed in a superimposed manner and in a distinguishable form.

[0007]

The present disclosure may include a component that outputs a distance and an orientation from a position on the flight plan route corresponding to the identified proximate place to the identified proximate place. The present disclosure may include a component that issues a warning when the proximate place is identified.

[0008]

The present disclosure may include a component that corrects the flight plan route such that the proximate place is avoided. The present disclosure may include a component that automatically corrects the flight

Claims

[Claim 1]

A system for setting a 3D flight plan route of an unmanned aerial vehicle, the system comprising:

a horizontal-plane position data input section that inputs data indicating a scheduled flight route of the unmanned aerial vehicle on a horizontal plane as horizontal-plane data on the flight plan route;

a height reference value input section that acquires a height reference value indicating an elevation of a ground surface under each of a plurality of positions on the flight plan route by reading from a geographic database;

a proximate place identification section that identifies, on any entity on the ground surface, a proximate place at which a distance from the flight plan route is equal to or less than a predetermined safe distance;

a flight plan route altitude determination section that determines values obtained by adding flight altitudes corresponding to the positions to the height reference values, respectively, as altitude data on the flight plan route;

a flight plan route correction section that, when the proximate place is identified by the proximate place identification section, corrects the flight plan route such that the proximate place is avoided;

a 3D display section that causes the flight plan route to be three-dimensionally displayed in a screen,

wherein the 3D display section causes the proximate place to be further displayed in a superimposed manner and in a distinguishable form, and

wherein when the proximate place is identified by the proximate place identification section, the flight plan route correction section corrects the flight plan route such that the proximate place is circumvented on the

horizontal plane.

[Claim 2]

The system according to claim 1, wherein the proximate place identification section further outputs a distance and an orientation from a position on the flight plan route corresponding to the identified proximate place to the identified proximate place.

[Claim 3]

The system according to claim 1 or 2, wherein the proximate place identification section issues a warning when the proximate place is identified.

[Claim 4]

The system according to claim 1, wherein when the proximate place is identified by the proximate place identification section, the flight plan route correction section automatically corrects the flight plan route such that a distance between the flight plan route and the proximate place becomes the safe distance or greater.

[Claim 5]

The system according to claim 1, wherein when the proximate place is identified by the proximate place identification section, the flight plan route correction section corrects the flight plan route such that the proximate place is avoided above the proximate place.

[Claim 6]

The system according to claim 5, wherein if the flight plan route exceeds a predetermined altitude limit when an attempt is made to avoid the proximate place above the proximate place, the flight plan route correction section corrects the flight plan route such that the proximate place is circumvented on the horizontal plane so as to prevent the flight plan route from exceeding the predetermined altitude limit.

[Claim 7]

The system according to any one of claims 1 to 6, wherein the

proximate place identification section

reads an altitude above ground level of a structure existing under the flight plan route from a structure shape database, and

identifies, on the structure, a place at which an altitude difference obtained by subtracting the altitude above ground level of the structure from an altitude above ground level of a portion of the flight plan route above the structure is equal to or less than the predetermined safe distance, as the proximate place.

[Claim 8]

The system according to claim 7, wherein when the proximate place identification section reads the altitude above ground level of the structure existing under the flight plan route from the structure shape database, the proximate place identification section widens the flight plan route based on a predetermined width and reads the altitude above ground level of the structure existing under the flight plan route from the structure shape database.

[Claim 9]

The system according to claim 1, further comprising a video data reproduction section that acquires data on a video of an external scene during a flight shot by the unmanned aerial vehicle, acquires data on an actual flight route of the unmanned aerial vehicle, and reproduces the data on the video of the external scene while showing a position where the video is shot by the unmanned aerial vehicle.

[Claim 10]

A computer program that implements the system according to any one of claims 1 to 9 when the computer program is executed by a computer.