

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Patent Application of Martin Alles, et al.

Serial No.: 12/026,372

Art Unit: 2617

Confirmation No. 2977

Filed: February 5, 2008

Examiner: Mazda Sabouri

Title: SYSTEM AND METHOD TO COLLECT AND MODIFY CALIBRATION DATA

AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

Responsive to the Final Office Action mailed 4 August 2014 and the Examiner Interview of 3 September 2104, the Applicants submit the following amendments and remarks.

Applicant's **Amendment to the Claims** begins on Page 2.

Applicant's **Remarks** begin on Page 9.

Amendment to the Claims:

1. (Currently Amended) A method for generating a calibration database, comprising:

receiving at a wireless device an attribute of a signal transmitted by a wireless transmitter to a mobile station in a region;

wirelessly transmitting from said wireless device said attribute to a controller unit;

obtaining location data at a plurality of geographic locations situated within said region, wherein said location data for any one of said plural geographic locations is determined using said wireless device;

providing a location information database wherein said location database includes latitude and longitude information for each of a plurality of points within said region;

determining a first point and a second point of said plural points that are in proximity to a first one of said plural geographic locations; and

interpolating between said first and second points to thereby determine a third point and entering said third point in said calibration database, and associating the location data for the first one of said plural geographic locations determined by said wireless device with the third point.

Claims 2-5. (Cancelled).

6. (Previously Presented) The method of Claim 1 wherein said attribute is selected from the group consisting of: signal strength, Cell Global Identity, broadcast control channel, base station identity code.

7. (Cancelled).

8. (Previously Presented) The method of Claim 1 further comprising determining at said controller unit if said location data is statistically sufficient and if so entering said location data into said calibration database.

9. (Previously Presented) The method of Claim 1 further comprising determining at said controller unit if said location data is statistically sufficient and if so entering said location data into a non-uniform grid generator.

10. (Previously Presented) The method of Claim 1 further comprising sending future positioning information from said controller unit to said wireless device.

11. (Original) The method of claim 10 wherein said future positioning information includes at least one of a geographic position and a speed.

12. (Original) The method of Claim 10 further comprising determining said future positioning information at least in part on information from said location information database.

13. (Original) The method of Claim 10 further comprising determining said future positioning information at least in part on information from a non-uniform grid generator.

14. (Previously Presented) The method of Claim 1 further comprising receiving at said wireless device an attribute of a signal transmitted by the wireless transmitter to a mobile station in a second region.

15. (Previously Presented) The method of Claim 1 wherein said region contains plural streets and intersections of said plural streets.

16. (Original) The method of Claim 15 wherein said location information database is a street database.

17. (Original) The method of Claim 16 further comprising the step of determining if said first geographic location is situated on one of said plural streets and only if said first geographic location is situated on one of said plural streets entering said geographic location in said calibration database.

18. (Currently Amended) A method for generating a calibration database, comprising;
receiving at a wireless device an attribute of a signal transmitted by a wireless transmitter to a mobile station in a region;

wirelessly transmitting from said wireless device said attribute to a controller unit;

obtaining location data of a plurality of geographic locations situated within said region, wherein said location data is determined using said wireless device, and wherein said region contains plural streets and intersections of said plural streets;

providing a location information database wherein said location database includes latitude and longitude information for each of a plurality of points within said region;

determining a status of said wireless device;

determining from said status a most likely one of said plural streets upon which said wireless device is sited for a first one of said plural geographic locations;

determining a first point of said plural points that is in proximity to said first geographic location; and

entering said first point in said calibration database and associating the location data for the first one of said plural geographic locations determined by said wireless device with the first point.

Claims 19-23. (Cancelled).

24. (Previously Presented) The method of Claim 18 wherein said attribute is selected from the group consisting of: signal strength, Cell global identity, broadcast control channel, base station identity code.

25. (Cancelled).

26. (Previously Presented) The method of Claim 18 further comprising determining at said controller unit if said location data is statistically sufficient and if so entering said location data into said location information database.

27. (Previously Presented) The method of Claim 18 further comprising determining at said controller unit if said location data is statistically sufficient and if so entering said location data into a non-uniform grid generator.

28. (Previously Presented) The method of Claim 18 further comprising sending future positioning information from said controller unit to said wireless device.

29. (Original) The method of Claim 28 wherein said future position information includes at least one of a geographic position and a speed.

30. (Original) The method of Claim 28 further comprising determining said future positioning information at least in part on information from said location information database.

31. (Original) The method of Claim 28 further comprising determining said future positioning information at least in part on information from a non-uniform grid generator.

32. (Previously Presented) The method of Claim 18 further comprising receiving at said wireless device an attribute of a signal transmitted by the wireless transmitter in communication with a mobile station in a second region.

33. (Original) The method of Claim 18 wherein said location database is a street database.

34. (Original) The method of Claim 18 wherein said status includes attributes selected from the group consisting of: direction of travel; speed of travel, and change in direction of travel.

35. (Currently Amended) A system for generating a calibration database, comprising:

a first database containing location data obtained at a plurality of geographic locations situated within a region, said location data for any one of said plural geographic locations is determined using a wireless device and said wireless device receives an attribute of a signal transmitted by a wireless transmitter to a mobile station in said region;

a wireless device transmitter for transmitting from said wireless device said attribute to a controller unit;

a location information database wherein said location database includes latitude and longitude information for each of a plurality of points within said region;

circuitry for determining a first point and a second point of said plural points that are in proximity to a first one of said plural geographical locations;

circuitry for interpolating between said first and second points to thereby determine a third point; and

circuitry for entering said third point in said calibration database; and,

circuitry for associating the location data for the first one of said plural geographic locations determined by said wireless device with the third point.

Claims 36-39. (Cancelled).

40. (Previously Presented) The system of Claim 35 wherein said attribute is selected from the group consisting of: signal strength, Cell Global identity, broadcast control channel, base station identity code.

41. (Cancelled).

42. (Previously Presented) The system of Claim 35 wherein said controller unit determines if said location data is statistically sufficient and if so, enters said location data into said location information database.

43. (Previously Presented) The system of Claim 35 wherein said controller unit determines if said location data is statistically sufficient and if so enters said location data into a non-uniform grid generator.

44. (Previously Presented) The system of Claim 35 wherein said controller unit sends future positioning information to said wireless device.

45. (Original) The system of Claim 44 wherein said future positioning information includes at least one of a geographic position and a speed.

46. (Original) The system of Claim 44 wherein said future positioning information is determined based at least in part on information from said location information database.

47. (Original) The system of claim 44 wherein said future positioning information is determined based at least in part on information from a non-uniform grid generator.

48. (Previously Presented) The system of Claim 35 wherein said wireless device receives an attribute of a signal transmitted by the wireless transmitter in communication with a mobile station in said second region.

49. (Previously Presented) The system of Claim 35 wherein said region contains plural streets and intersections of said plural streets.

50. (Original) The system of Claim 49 wherein said location database is a street database.

51. (Previously Presented) The system of Claim 50 further comprising circuitry for determining if said first geographic location is situated on one of said plural streets and circuitry for entering said geographic location in said calibration database only if said first geographic location is situated on one of said plural streets.

52. (Currently Amended) A system for generating a calibration database, comprising:

a wireless device for determining location data at a plurality of geographic locations situated within a region, wherein said region contains plural streets and intersections of said plural streets, said wireless device receiving an attribute of a signal transmitted by a wireless transmitter to a mobile station in said region;

a wireless device transmitter for transmitting from said wireless device said attribute to a controller unit;

a location information database wherein said location database includes latitude and longitude information for each of a plurality of points within said region;

circuitry for determining a status of said wireless device;

circuitry for determining from said status a most likely one of said plural streets upon which said wireless device is sited for a first one of said plural geographic locations;

circuitry for determining a first point of said plural points that is in proximity to said first geographic location; and,

circuitry for entering said first point in said calibration database; and associating the location data for the first one of said plural geographic locations determined by said wireless device with the first point.

Claims 53-55. (Cancelled).

56. (Previously Presented) The system of Claim 52 wherein said attribute is selected from the group consisting of: signal strength, Cell Global identity, broadcast control channel, base station identity code.

57. (Cancelled).

58. (Previously Presented) The system of Claim 52 wherein said controller unit determines if said location data is statistically sufficient and if so, enters said location data into said location information database.

59. (Previously Presented) The system of Claim 52 wherein said controller unit determines if said location data is statistically sufficient and if so enters said location data into a non-uniform grid generator.

60. (Previously Presented) The system of Claim 52 wherein said controller unit sends future positioning information to said wireless device.

61. (Original) The system of Claim 60 wherein said future positioning information includes at least one of a geographic position and a speed.

62. (Original) The system of Claim 60 wherein said future positioning information is determined based at least in part on information from said location information database.

63. (Original) The system of claim 60 wherein said future positioning information is determined based at least in part on information from a non-uniform grid generator.

64. (Previously Presented) The system of Claim 52 wherein said wireless device receives an attribute of a signal transmitted by the wireless transmitter in communication with a mobile station in said second region.

65. (Original) The system of Claim 52 wherein said location database is a street database.

66. (Original) The system of Claim 52, wherein said status includes attributes selected from the group consisting of: direction of travel; speed of travel, and change in direction of travel.

Remarks

Claims 1, 6, 8-18, 24, 26-35, 40, 42-52, 56, 58-66 are pending with the entry of this amendment.

Claims 1, 18, 35 and 52 have been amended to include the limitations of associating the location data for the geographic locations determined by said wireless device with the third point or first point when entering the data in the database. Support for this amendment may be found throughout the specification and particularly in ¶[0033].

Interview

The Applicant appreciates the consideration of the Examiner during the interview of September 3, 2014. The Applicant discussed, in addition to arguments against the prior art, amendments that would clarify the invention and overcome the prior art of record. The Office indicated that the clarifying amendments proposed would overcome the current rejections. The Office stated they would favorably consider the amendments under the after final pilot program. The Amendments discussed in the interview are reflected in this amendment.

Rejections Under 35 U.S.C. §103

Claims 1, 6, 8-18, 24, 26-35, 40, 42-52, 56 and 58-66 are improperly rejected as being unpatentable over Walker in view of Okada (6,268,825).

A. Independent Claims

Claim 1 is illustrative of the other Independent Claims

Claim 1, recites:

A method for generating a calibration database,
comprising:

receiving at a wireless device an attribute of a signal
transmitted by a wireless transmitter to a mobile station in a
region;

wirelessly transmitting from said wireless device said attribute to a controller unit;

obtaining location data at a plurality of geographic locations situated within said region, wherein said location data for any one of said plural geographic locations is determined using said wireless device;

providing a location information database wherein said location database includes latitude and longitude information for each of a plurality of points within said region;

determining a first point and a second point of said plural points that are in proximity to a first one of said plural geographic locations; and

interpolating between said first and second points to thereby determine a third point and entering said third point in said calibration database, and associating the location data for the first one of said plural geographic locations determined by said wireless device with the third point.

As discussed in the interview, the claims are directed to generating a calibration database and not merely drive testing or geolocating. As agreed by the Office, the claims as amended herein are allowable over the cited art. An exemplary summary of Claim 1 is as follows:

A method for generating a calibration database, comprising:

receiving at a wireless device an attribute of a signal transmitted by a wireless transmitter to a mobile station in a region;

The wireless device receives a transmission between a base station and a mobile and determines an attribute of the received signal.

wirelessly transmitting from said wireless device said attribute to a controller unit;

obtaining location data at a plurality of geographic locations situated within said region, wherein said location data for any one of said plural geographic locations is determined using said wireless device;

The attribute is associated with a geographic location and the location data includes the attribute.

providing a location information database wherein said location database includes latitude and longitude information for each of a plurality of points within said region;

The location information database includes geographic points associated with, for example, roads or other geographic features. These points are distinct from the geographic locations described above and obtained by the wireless device.

determining a first point and a second point of said plural points that are in proximity to a first one of said plural geographic locations; and

The first and second points are from the location information database and the first one of the geographic locations is from the wireless device and is associated with an attribute.

interpolating between said first and second points to thereby determine a third point and entering said third point in said calibration database and associating the location data for the first one of said plural geographic locations determined by said wireless device with the third point.

Rather than entering the first geographic location with the location data, the third point is determined and associated with the location data of the first geographic location.

In the interview, the Office acknowledged that the interpolating step is not taught in the prior art. There is simply no disclosure in Walker or Okada for “associating the location data for the first one of said plural geographic locations determined by said wireless device with the third point.” Walker describes a test drive, and Okada describes navigation.

In prior Office Actions, the Office acknowledges that the interpolating step is not found in Walker and clearly, as amended, the interpolating step is also not found in Okada.

For these same reasons, the remaining independent claims are also allowable over the prior art, as they have a similar recitation of the above interpolating step.

B. Dependent Claims

The remaining claims all depend from Claims 1, 18, 35 and 52 respectively and thus are allowable over the cited art for the same reasons irrespective of the additional patentable features. Notwithstanding, several limitations of the dependent claims are highlighted.

Claims 8, 26, 42 and 58

Claim 8 recites *inter alia*:

comprising determining at said controller unit if said location data is statistically sufficient and if so entering said location data into said calibration database.

The Office suggests that Okada discloses this limitation at col. 3, ll. 1-6

Okada states:

Because the simplified map database includes only location data for every map point per, for example, several 10 to sever 100 meters, curve can not be identified with sufficient accuracy. The present invention, however, does enable such curves to be identified accurately because it uses road shape data with more detail. Moreover, traveling stability can be more accurately evaluated by storing in the detailed map database data, such as the cant, the radius of curvature, and lengthwise slope. (col 2, l. 66-Col. 3, l. 7)

In no manner can the above support the Office's conclusion that the controller determines if the location data is statistically sufficient and then entering the data upon such a finding. In the cited passage, Okada simply states it uses more types of and more accurate data, period.

Claims 9, 27, 43 and 59

determining at said controller unit if said location data is statistically sufficient and if so entering said location data into a non-uniform grid generator.

The Office uses Okada Fig. 10 and col. 16, ll. 36-42 to support this limitation. Similar to the above, the cited portion of Okada does not teach a statistically sufficient determination, nor a non-uniform grid generator.

Conclusion

The current amendment clarifies the invention and thus overcomes the substantive rejections based upon Walker in view of Okada. The Applicant has demonstrated that the combination of Walker and Okada fail to disclose each and every element of the independent claims. Furthermore, Applicant has also highlighted some additional features of the dependent claims. A *prima facie* case of obviousness may not be established in view of the amendments.

Applicant respectfully submits that the claims are in condition for allowance and a notice to this effect is respectfully requested.

No fees are believed due, however, the Office is requested and hereby authorized to charge any necessary fees to Deposit Account Number 04-1679.

If any point remains that is deemed best resolved through a telephonic conversation, the Office is hereby requested to contact the undersigned directly.

Respectfully submitted,

/Mark C. Comtois/

Mark C. Comtois Reg. No. 46,285

Patrick C. Muldoon Reg. No. 47,343

DUANE MORRIS LLP
505 9th Street N.W., Suite 1000
Washington, D.C. 20004
Telephone: (202) 776-7800
Telecopier: (202) 776-7801

Dated: 3 October 2014