

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of:) Group Art Unit: 2617
Charles L. Karr) Confirmation No.: 9897
Serial No.: 12/014,092) Examiner: Jama, Isaak R.
Filed: 01-14-2008)
Atty. File No.: 1003-6) AFTER ALLOWANCE
Entitled: "MULTIPLE LOCATION ESTIMATORS) AMENDMENT
FOR WIRELESS LOCATION")
) Electronically Submitted
)
)

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

Dear Sir:

Applicants appreciate the Examiner's allowance of the present application. It is herein requested that the amendments herein be entered into the present application as an after allowance amendment.

New subclaims 3-44 are provided herein together with support for these subclaims in the Remarks section. Minor amendments to Claim 1 have been made to better define the claimed invention. No new matter has been added to present application. An additional "apparatus" version of independent Claim 1 has been added as well as a Claim 43. It is believed that Claim 43 provides no burden on the Examiner to allow. The fees for the additional 42 claims are being paid with the electronic filing of this paper.

In the event that the Examiner has any questions or concerns, it is requested that the Examiner contact the undersigned Applicant.

Applicants further request entry of substitute drawing sheets for Figs. 8(1) and 8(2) provided herewith. The present application is identified as a continuation of U.S. Patent Application No. 09/194,367 (now U.S. Pat. No. 7,764,231); however, the originally filed drawings for Figs. 8(1) and 8(2) for the present application were unintentionally obtained from another

related patent application wherein these originally filed figures included additional information not in the corresponding Figs. 8(1) and 8(2) of U.S. Patent Application No. 09/194,367. Accordingly, it is requested that Figs. 8(1), and 8(2) as originally entered in the present application be replaced with the corresponding figures provided herewith which correspond to the originally filed figures of U.S. Patent Application No. 09/194,367.

Applicants note that in the publication of the present application, U.S. Publication No. 2008/0113672, that Appendices A, B, C, and D were not printed. It is respectfully requested that all Appendices to the present application be published when the present application issues. Note that these Appendices are not “program listings” as per 37 CFR §1.96 in that the “code” presented is **pseudo-code** providing high level descriptions software code that could be provided to make such pseudo-code operative. Moreover, the descriptions of these appendices provide descriptions of specific functionality and operations performed and claimed by the claimed invention. In particular, these Appendices do **NOT** include “printouts” of computer instructions. Accordingly, such Appendices are an integral part of the specification that is provided as appendices in order to make the application more easy to follow. If the Examiner (or anyone else at the Office) believes such Appendices should not be printed, then it is respectfully requested that the Applicant undersigned be contacted immediately.

IN THE CLAIMS.

1. (Currently Amended) A method for locating, from a plurality of wireless mobile stations, one of the wireless mobile stations using measurements of wireless signals, wherein at least one of: (i) said measurements and (ii) said wireless signals are transmitted between said one wireless mobile station and at least one of a plurality of fixed location communication stations, each communication station capable of at least one of receiving wireless signals from, and transmitting wireless signals to said one wireless mobile station, comprising the following steps at A and B which are performed by computational machinery:

(A) receiving, from each of at least first and second mobile station location estimators, corresponding first and second information related to likely geographical approximations for a location of said one wireless mobile station, wherein (a) and (b) following are satisfied:

- (a) for determining a likely geographical approximation, GA_A , for a location, L_A , of a second of the wireless mobile stations at a time T_A , said first mobile station location estimator generates GA_A without requiring a prior likely geographical location approximation generated by said second mobile station location estimator for locating the second wireless mobile station at substantially the location L_A at substantially the time T_A , and,
- (b) for estimating a likely geographical approximation, GA_B , for a location, L_B , of a third one of the wireless mobile stations at a time T_B , said second mobile station location estimator generates GA_B without requiring a prior likely geographical location approximation generated by said first mobile station location estimator for locating the third wireless mobile station at the location L_B at substantially the time T_B ;

(B) determining a resulting location estimate of said one wireless mobile station, wherein said step of determining includes at least one of the substeps (B1) through (B2) following:

- (B1) when said first and second information include, respectively, first and second likely geographical approximations, combining said first and second likely geographical approximations so that said resulting location estimate is dependent on each of said first and second location likely geographical approximations; and
- (B2) selecting one of said first and second information for receiving preference in determining said resulting location estimate, wherein said selecting is dependent upon location related data in at least one of said first and second information.

2. (Currently Amended) The method of Claim 1, further including a step of providing display information for: (a) displaying a representation of said resulting location estimate, wherein said display information is for displaying with a map of an area having the resulting location estimate, and (b) ~~concurrently~~ at a same time displaying information indicative of an accuracy of the resulting location estimate.

3. (New) The method of Claim 1, wherein the first and second mobile station location estimators comprise hardware and software that perform different location determining computational techniques for locating the one wireless mobile station.

4. (New) The method of Claim 3, wherein for an unknown location L, of the one wireless mobile station M, from which location related data is obtained for locating M, wherein the location related data is obtained from values of one or more wireless signal characteristics, the values dependent upon signal transmission of wireless signals to or from the one mobile station M:

for estimating the location L from the location related data at least one of (1) and (2) hold:

(1) a first collection of location determining computational machinery instructions is performed by an activation of the first mobile station location estimator, the first collection being an operational representation of a first location determining technique;

wherein the first location technique: (i) is representable independently of all actual geographical locations, and (ii) identifies, for use in determining each unknown mobile station location (U_1) of a plurality of unknown mobile station locations, a first predetermined set of at least one of the wireless signal characteristics whose values are dependent upon signal transmission of wireless signals to or from the one unknown mobile station location U_1 ;

wherein the performance of the first collection determines a first location estimate of L, wherein an operational representation of the first location determining technique is not performed by the second mobile station location estimator for determining a location estimation of L, or

(2) a second collection of location determining computational machinery instructions is performed by an activation of the second mobile station location estimator, the second collection being an operational representation of a second location determining technique;

wherein the second location determining technique: (i) is representable independently of all actual geographical locations, and (ii) identifies, for use in determining each unknown mobile station location (U_2) one of a plurality of unknown mobile station locations, a second predetermined set of at least one of the wireless signal characteristics whose values are dependent

upon signal transmission of wireless signals to or from the one unknown mobile station location U_2 ;

wherein the performance of the second collection determines a second location estimate of L, wherein an operational representation of the second location determining technique is not performed by the first mobile station location estimator for determining a location estimation of L.

5. (New) The method of Claim 4, wherein the one or more wireless signal characteristics for locating an unknown mobile location includes at least one of: a time of arrival of a wireless signal transmitted from the unknown mobile location to one of the communication stations attached to the Earth, a time of arrival of a wireless signal transmitted to the unknown mobile location from a satellite, and a signal strength of a wireless signal transmitted from the unknown mobile location to one of the communication stations attached to the Earth.

6. (New) The method of Claim 3, wherein for locating the one wireless mobile station, M herein, the first and second mobile station location estimators perform different location determining computational techniques for locating M such that if, for each of the first and second mobile station location estimators, identical data were available for providing all input for locating M, then upon activating each of the first and second location estimators with their input for locating M obtained from the identical data, (1) a location related computation is performed by the activation of the first mobile station location estimator that is not performed by the activation of the second location estimator, or, (2) a location related computation is performed by the activation of the second mobile station location estimator that is not performed by the activation of the first location estimator.

7. (New) The method of Claim 1, wherein the first mobile station location estimator determines the first information via a computational machinery implementation of a first location determining technique such that for data, obtained from values of first predetermined wireless transmission characteristics of wireless signal communication with the one mobile station, being available as input to the first mobile station location estimator, the first mobile station location estimator outputs a likely geographical approximation of the one mobile station, the likely geographical approximation being the first likely geographical approximation when (B1) of Claim 1 holds;

wherein the second mobile station location estimator determines the second information via a computational machinery implementation of a second location determining technique such

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