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Certification

Welocalize Translations

TRANSLATORS' DECLARATION:

We, Travis Huntsman, Lorelle Knowles, and Eric Vance hereby declare:

That we possess advanced knowledge of the Japanese and English languages. The attached Japanese into English translation has been translated by us and to the best of our knowledge and belief it is a true, correct and complete translation of: JPH10-221091A, JPH08-110230A and JP2007017351A. We hereby certify under penalty of perjury that the foregoing is true and correct.

A handwritten signature in black ink, appearing to read "Travis Huntsman".

Travis Huntsman

Project Number: [Project # SUMI_2403_P0004] (JP2007017351A_Original_document_20240313113257)

A handwritten signature in black ink, appearing to read "Lorelle Knowles".

Lorelle Knowles

Project Number: [Project # SUMI_2403_P0004] (L11031_04-6_JPH10-221091A)

A handwritten signature in black ink, appearing to read "Eric Vance".

Eric Vance

Project Number: [Project # SUMI_2403_P0004] (L11031_04-7_JPH08-110230A)

15 W. 37th Street 4th Floor
New York, NY 10018
212.581.8870

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(22) Date of Filing	October 11, 1994 (Heisei 6)	(72) Inventor	Fumihito Endo c/o Alpine Electronics, Inc. 1-1-8 Nishigotanda, Shinagawa-ku, Tokyo-to
		(74) Agent	Chimoto Saito, Patent Attorney

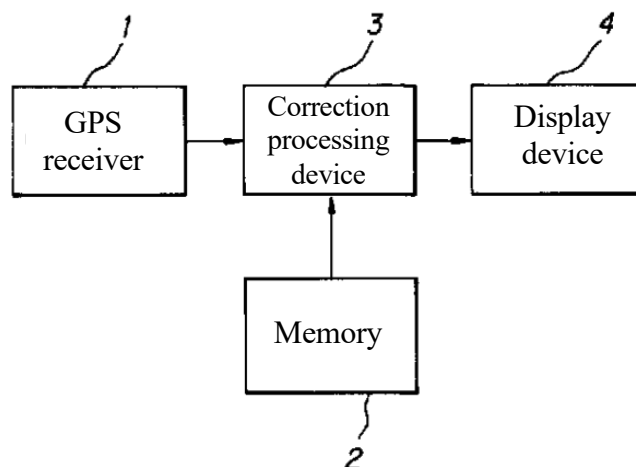
(54) [Title of Invention] TIME DISPLAY DEVICE

(57) [Abstract]

[Object] To enable continuous timestamp display or date and time display without a time difference, even when moving between various regions having different standard times.

[Configuration] A time difference between a region to which a common standard time is applied and a date and time data based on Japan Standard Time generated by a GPS receiver 1 is stored in a memory 2 for each standard time in various parts of the world. A correction processing device 3 references information stored in the memory 2 to determine a region containing a current position detected by the GPS receiver 1, reads the time difference data with respect to Japan Standard Time in the region, corrects a date and time data generated by the GPS receiver 1, and outputs such to a display device 4 to cause such to perform date and time display after time difference correction.

Overall configurational diagram of time display device of one embodiment of the present invention



[Scope of Patent Claims]

[Claim 1] A time display device, comprising:

time data generation means for generating timestamp data or date and time data that is based on one specific standard time;

current position detection means for detecting the current position;

storage means for storing a regional range to which a common standard time is applied and a time difference with respect to the specific standard time for each local standard time;

correction means for referencing information stored in the storage means, determining an area containing the current position detected by the current position detection means, reading out the time difference with respect to the specific standard time in the area, and correcting the timestamp data or date and time data generated by the time data generation means; and

display means for displaying a timestamp or date and time based on the timestamp data or date and time data corrected by the correction means.

[Claim 2] The time display device according to claim 1, wherein the time data generation means and current position detection means are a GPS receiver.

[Detailed Description of Invention]

[0001]

[Industrial Applicability] The present invention pertains to a clock device and particularly relates to a time display device capable of continuous timestamp display or date and time display without a time difference, even when moving between various regions having different standard times.

[0002]

[Conventional Art] GPS receivers used in onboard navigation devices not only detect the current position and current direction using satellite navigation, but also have a function to detect the current date and time and generate date and time data, and by setting the device to clock display mode, are capable of displaying the current date and time on a screen.

[0003]

[Problem to Be Solved by Invention] However, for example, when the region in which the onboard navigation device was purchased is Japan, the date and time data generated by the GPS receiver is date and time data based on Japan Standard Time (JST), and thus, for example, when a user transports data to Southeast Asia and travels by vehicle across borders such as Cambodia, Myanmar, Bangladesh, and India, a time difference in the date and time display will occur because the standard time differs in each country, which is very inconvenient. In light of the above, an object of the present invention is to provide a time display device capable of continuous timestamp display or date and time display without a time difference, even when moving between various regions having different standard times.

[0004]

[Means for Solving Problem] In the present invention, the above object is accomplished by being provided with: time data generation means for generating timestamp data or date and time data that is based on one specific standard time; current position detection means for detecting the current position; storage means for storing a regional to which a common standard time is applied and a time difference with respect to the specific standard time for each local standard time; correction means for referencing information stored in the storage means, determining an area containing the current position detected by the current position detection means, reading out the time difference with respect to the specific standard time in the area, and correcting the timestamp data or date and time data generated by the time data generation means; and display means for displaying a timestamp or date and time based on the timestamp data or date and time data corrected by the correction means.

[0005]

[Action] According to the present invention, for each standard time in each region, the storage means store the time difference between the area to which the common standard time is applied and the time data or date and time data based on the one specific standard time generated by the time data generation means, this stored information is referenced to determine the region containing the current position detected by the current position detection means, the time difference with respect to the specific standard time in the region is read from the storage means, the timestamp data or date and time data generated is corrected by the time data generation means, and timestamp display or date and time display is performed based on the corrected timestamp data or date and time data. Thus, it is possible to perform timestamp display or date and time display without a time difference even when moving to various regions having different standard times, and the user does not need to laboriously correct for the time difference in their head, which is extremely convenient.

[0006] Note that when configuring such that generation of timestamp data or date and time data based on one given specific standard time and detection of the current position are performed by a GPS receiver, the generation of timestamp data or date and time data based on the specific standard time and the detection of the current position need not be performed by separate devices, leading to a simpler device configuration.

[0007]

[Embodiments] FIG. 1 is an overall configuration diagram of the time display device according to one embodiment of the present invention. In the drawing, 1 is a GPS receiver that periodically detects the current position based on longitude and latitude coordinates by satellite navigation, and this GPS receiver 1 also has the function of detecting the current date and time and generating date and time data. In this case, the GPS receiver 1 generates the date and time data based on Japan Standard Time as the specific standard time. Reference numeral 2 is a memory that stores regional ranges to which a common standard time is applied (in this case, closed curve graph data on longitude and latitude coordinates) and time difference data with respect to Japan Standard Time for each standard time in various parts of the world, 3 is a display device that inputs date and time data and displays the current date and time in characters, and 4 is a correction processing device configured from a microcomputer, wherein the current position data and current date and time data are inputted from the from the GPS receiver 1, the information stored in memory 2 is referenced to determine the region containing the current position, the time difference from Japan Standard Time in the region is read out, the date and time data inputted from the GPS receiver 1 are corrected and outputted to the display device 3, and the corrected date and time are displayed thereon according to the current position.

[0008] FIG. 2 is an explanatory diagram of time difference data with respect to Japan Standard time for each region stored in the memory 2, and operation of the above embodiment will be briefly described below with reference to this drawing. Now, when the user is in Cambodia together with the time display device, based on the current position detected by the GPS receiver 1, once the correction processing device 4 references the information stored in the memory 2 to determine the region according to standard time, it is found that the area includes Cambodia, and thus the time difference of this area with respect to Japan (in this case, -2 hours) is read out. Then, the current date and time data inputted from the GPS receiver 1 is corrected by adding the time difference, and is output to the display device 3 to cause such to display the date and time. As a result, the date and time based on Cambodian standard time are displayed on the screen of the display device 3, and the user does not need to laboriously perform time difference correction calculations for Cambodian standard time in their head.

[0009] Then, when the user enters Myanmar from Cambodia together with the time display device,

based on the current position detected by the GPS receiver 1, once the correction processing device 4 references the information stored in the memory 2 to determine the region according to standard time, it is found that the area includes Myanmar, and thus the time difference of this area with respect to Japan (in this case, -2 hours and 30 minutes) is read out. Then, the current date and time data inputted from the GPS receiver 1 is corrected by adding the time difference, and is output to the display device 3 to cause such to display the date and time. As a result, the date and time based on Myanmar standard time are displayed on the screen of the display device 3.

[0010] Below, similarly, once the user moves into Bangladesh from Myanmar together with the time display device, the current date and time input from the GPS receiver 1 plus -3 hours are displayed, and when moving into India, the date and time are displayed with -3 hours and 30 minutes added to the current date and time data input from GPS receiver 1; therefore, the user can always see the date and time based on the standard time applied to the region containing the current position, and the user does not need to laboriously perform time difference correction calculations in their head for the local standard time.

[0011] Note that in the embodiment described above, the specific standard time is Japan Standard Time, but this may be a standard time from another region, such as Western European Standard Time (Greenwich Time) or North American Intercolonial Standard Time. Also, the configuration is such that the GPS receiver 1 generates the date and time data, but a digital clock may also generate the date and time data based on one given specific standard time. Furthermore, the configuration is such that the current position is detected by GPS satellite navigation, but this may be detected by autonomous navigation using a distance sensor and a direction sensor. Moreover, of the date and time data generated by the GPS receiver 1, timestamp data may be used to display on the display device a timestamp corrected for the time difference according the current position. Additionally, the time display device may be configured as a portion of an onboard navigation device or a portable navigation device.

[0012]

[Effect of Invention] According to the present invention above, the configuration is such that, for each standard time in each region, the storage means store the time difference between the area to which the common standard time is applied and the time data or date and time data based on the one specific standard time generated by the time data generation means, this stored information is referenced to determine the region containing the current position detected by the current position detection means, the time difference with respect to the specific standard time in the region is read from the storage means, the timestamp data or date and time data generated is corrected by the time data generation means, and timestamp display or date and time display is performed based on the corrected timestamp data or date and time data, and thus even when moving to various regions having different standard times, the timestamp display or date and time display without any time difference can always be performed, and the user does not need to laboriously correct for the time difference in their head, which is extremely convenient.

[0013] Furthermore, the configuration is such that generation of timestamp data or date and time data based on one given specific standard time and detection of the current position are performed by a GPS receiver, and thus the generation of timestamp data or date and time data based on the specific standard time and the detection of the current position need not be performed by separate devices, leading to a simpler device configuration.

[Brief Description of Drawings]

[FIG. 1] An overall configuration diagram of the time display device according to one embodiment of the present invention.

[FIG. 2] An explanatory diagram of time difference data with respect to Japan Standard time for each region stored in the memory.

[Description of Reference Numerals]

1 GPS receiver

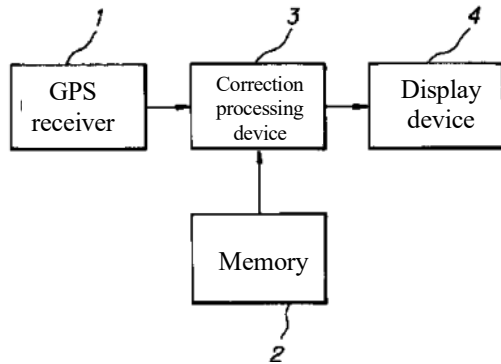
2 Memory

3 Display device

4 Correction processing device

[FIG. 1]

Overall configurational diagram of time display device of one embodiment of the present invention



[FIG. 2]

Explanation of time difference data of each region recorded in memory with respect to Japan Standard Time

Region	India Sri Lanka	Bangladesh	Myanmar	Cambodia Vietnam	Japan Korea	-
Time difference	3 hours, 30 minutes	3 hours	2 hours, 30 minutes	2 hours	0 hours, 0 minutes	