A shooting game method and an apparatus for a mobile terminal device using local positioning communication to run a shooting game by local positioning communication based on positions of the mobile terminal device and a neighboring mobile terminal device. Accordingly, improving the user convenience implementing an intelligent shooting game using a position recognizing function of the mobile terminal device, and also, instead of a stand-alone game, twosome or more games can be implemented.
FIG. 2

START

IS KEY TO RUN A GAME INPUT? N

Y

PROVIDE A LIST OF PLURAL GAMES

IS DESIRED GAME SELECTED? N

Y

REQUIRE USER TO INPUT GAME DATA SUCH AS ANGLE, STRENGTH AND DIRECTION

IS GAME DATA INPUT? N

Y

TRANSMIT AND RECEIVE A GAME SIGNAL TO/FROM TARGET TERMINAL DEVICE THROUGH LOCAL POSITIONING UNIT, DIRECTION UNIT AND LOCAL COMMUNICATION UNIT

IS GAME OVER? N

Y

END
FIG. 5
SHOOTING GAME METHOD AND APPARATUS FOR MOBILE TERMINAL DEVICE USING LOCAL POSITIONING COMMUNICATION

CROSS-REFERENCE TO RELATED APPLICATIONS


BACKGROUND OF THE INVENTION

[0002] 1. Field of the invention

[0003] The present invention relates to a shooting game method and an apparatus for a terminal device using local positioning communication. More particularly, the present invention relates to a shooting game method and an apparatus for a terminal device using local positioning communication to run a shooting game by local positioning communication based on positions of a terminal device and a neighboring terminal device.

[0004] 2. Description of the Related Art

[0005] In general, among additional functions of a mobile terminal device, young people are interested in especially a game function.

[0006] Today, a mobile terminal device with a game function, which has been distributed in the market, includes electronic game programs having a certain code in its memory. Accordingly, a user can enjoy the electronic game using a key input unit placed on the front of the terminal device.

[0007] In addition, unlike a program code stored in the memory of the mobile terminal device, a user connects the mobile terminal device to an internet game server through the wireless internet, and selects and downloads a desired game program code of various game programs in the game server and the corresponding data. In addition, data of the same program are separately downloaded according to the degree of difficulty and the game of the corresponding stage is run.

[0008] However, as described above, most game programs through a mobile terminal device are run just for one user and are enjoyed by one user. Recently, as internet users remotely enjoy game programs with other internet users online, the technology by which mobile terminal device users can also enjoy the game programs with other mobile terminal device users in the local area is needed.

SUMMARY OF THE INVENTION

[0009] An aspect of the present invention is to address at least the above problems and/or disadvantages. Accordingly, an aspect of the present invention is to provide a shooting game method and an apparatus for a mobile terminal device using local positioning communication to run a shooting game by local positioning communication based on positions of the mobile terminal device and a neighboring mobile terminal device.

[0100] In order to achieve the above-described aspect of the present invention, there is provided a shooting game method, comprising: acquiring real time position information through a position recognizing function, and running a spatial game through a local communication with a target terminal device based on the real time position information.

[0101] The position recognizing function receives the present position information from a global positioning system (GPS) satellite, or sets the present position as a reference point (0,0) and performs local positioning communication with the target terminal device and neighboring terminal devices to acquire each position information according to a distance from each terminal device.

[0102] Further, the local positioning communication may utilize IEEE 802.15.4a.

[0103] Further, the running of the spatial game may include running a one-dimensional shooting game based on data about the shooting strength according to a distance from the target terminal device, and data about an angle to set the up and down shooting direction.

[0104] Further, the running of the spatial game may include running a two-dimensional shooting game based on data about a first angle to set the left and right shooting direction, and data about a second angle to set the up and down shooting direction of the target terminal device.

[0105] Further, the running of the spatial game may include running a three-dimensional shooting game based on data about a distance from the target terminal device according to the real time position information, data about a first angle to set the left and right shooting direction of the target terminal device, and data about a second angle to set the up and down shooting direction of the target terminal device.

[0106] Meanwhile, in order to achieve the above-described aspect of the present invention, a mobile terminal device capable of executing a local communication shooting game, comprising: a local positioning unit for calculating the present position; a direction unit for setting an angle of the shooting direction; a local communication unit for transmitting and receiving one or more game signals to/from a target terminal device in the local area; a game program unit for storing a plurality of game programs; a mobile telecommunication unit for communicating with other mobile terminal devices through a mobile telecommunication network; and a controlling unit for calculating a distance from the target terminal device based on the present position, and controlling to transmit and receive the one or more game signals according to a shooting angle and the shooting strength to/from the target terminal device.

[0107] The local communication unit performs local positioning communication with neighboring terminal devices to calculate the present position and a distance from the target terminal device.

[0108] Further, the local positioning unit may comprise receiving the present position information from a global positioning system (GPS) satellite.

[0109] Further, the controlling unit sets the present position as a reference point (0,0) and performs local positioning communication with the target terminal device and the neighboring terminal devices through the local communica-
tion unit to acquire each position information according to a distance from each terminal device.

[0020] Further, the controlling unit runs a one-di-

mensional shooting game based on data about the shooting strength according to a distance from the target terminal device, and data about an angle to set the up and down shooting direction.

[0021] Further, the controlling unit runs a two-di-

mensional shooting game based on data about a first angle to set the left and right shooting direction, and data about a second angle to set the up and down shooting direction of the target terminal device.

[0022] Further, the controlling unit runs a three-di-

mensional shooting game based on data about a distance from the target terminal device according to the present position, data about a first angle to set the left and right shooting direction of the target terminal device, and data about a second angle to set the up and down shooting direction of the target terminal device.

BRIEF DESCRIPTION OF THE DRAWING
FIGS.

[0023] The above aspect and other features of the present invention will become more apparent by describing in detail exemplary embodiments thereof with reference to the attached drawing figures, wherein:

[0024] FIG. 1 is a schematic diagram showing the inner configuration of a mobile terminal device to which a shooting game method using local positioning communication is applied, according to an exemplary embodiment of the present invention;

[0025] FIG. 2 is a flow chart illustrating the operations of a shooting game method using local positioning communication according to an exemplary embodiment of the present invention;

[0026] FIG. 3 is a view showing a one-dimensional shooting game according to another exemplary embodiment of the present invention;

[0027] FIG. 4 is a view showing a two-dimensional shooting game according to yet another exemplary embodiment of the present invention; and

[0028] FIG. 5 is a view showing a three-dimensional shooting game according to yet another exemplary embodiment of the present invention.

DETAILED DESCRIPTION OF THE EXEMPLARY EMBODIMENTS

[0029] Hereinafter, exemplary embodiments of the present invention will be described in detail with reference to the accompanying drawing figures.

[0030] In the following description, same drawing reference numerals and characters are used for the analogous elements even in different drawings. The matters defined in the description such as a detailed construction and elements are nothing but the ones provided to assist in a comprehensive understanding of the invention and not by way of a limitation. Thus, it is apparent that the present invention can be carried out without those defined matters. Also, well-known functions or constructions are not described in detail since they would obscure the exemplary embodiments of the present invention in unnecessary detail.

[0031] FIG. 1 is a schematic diagram showing the inner configuration of a mobile terminal device to which a shooting game method using local positioning communication is applied, according to an exemplary embodiment of the present invention.

[0032] A mobile terminal device 100 includes a local positioning unit 110, a direction unit 120, a local communication unit (local com. unit) 130, a game program unit 140, a mobile telecommunication unit (mobile telecom. unit) 150, and a controlling unit (control unit) 160.

[0033] The local positioning unit 110 calculates a present position of the mobile terminal device 100 and, for example, has a global positioning system (GPS) function of receiving the position information from GPS satellites.

[0034] The direction unit 120 calculates the moving direction of a mobile terminal device, for example, through a fluxgate sensor to set the shooting direction when executing the shooting game according to an exemplary embodiment of the present invention.

[0035] The local communication unit 130 performs local positioning communication with neighboring terminal devices to calculate the present position and transmits a shooting signal to other terminal devices participating in a game. The local communication unit 130 may include, for example, IEEE 802.15.4a which is a wireless personal area network (WPAN) for the next generation and may transmit and receive distance information to/from a neighboring terminal device. The local communication unit 130 may further include IEEE 802.15.4b which extends IEEE 802.15.4. Accordingly, the controlling unit 160 sets the present position as a reference point (0,0) and performs local positioning communication with neighboring terminal devices including the target terminal device to acquire each position information according to a distance from each terminal device.

[0036] The game program unit 140 stores a game program such as Fortress and Survival game written in a programming language such as Java.

[0037] The mobile telecommunication unit 150 communicates with other mobile terminal devices through a mobile telecommunication network. That is, the mobile telecommunication unit 150 transmits and receives data and a voice signal to/from a wireless base station (BS) through a wireless interface according to IS (Industry Standard)-95.

[0038] When a user performs a key input command to run the shooting game, the controlling unit 160 provides a list of game programs stored in the game program unit 140. Subsequently, if the user selects a game program through a key input, the controlling unit 160 runs the selected game program. The controlling unit 160 provides a screen to select a shooting target and a screen to input or select a shooting angle and a shooting strength according to a type of the shooting game, and stores the game data input by the user in a temporary memory. In addition, based on the input game data, the controlling unit 160 transmits and receives wireless signals for the game program such as a shooting signal to the target terminal device through the local positioning unit 110, the direction unit 120 and the local communication unit 130.
FIG. 2 is a flow chart explaining the operation of a shooting game method using local positioning communication, according to an exemplary embodiment of the present invention.

First, a user performs key input to run a game through a key input unit (not shown) of the mobile terminal device 100 (S202).

When a command of running the game is input by the user, the controlling unit 160 provides a list of plural games stored in the game program unit 140 on a screen (S204). For example, the controlling unit 160 displays a list of games such as Fortress, survival, and shooting game.

Accordingly, the user selects a desired game program through key input (S206).

Subsequently, if a game program is selected by the user, the controlling unit 160 requests the user to input on the screen game data such as an angle to set the shooting direction up and down, the strength of shooting and the direction to set the shooting direction left and right (S208).

For example, as shown in FIG. 3, if a user selects a one-dimensional shooting game from the plural game programs, the controlling unit 160 requests the user to input data such as the shooting strength according to a distance d from the target terminal device Node B and an angle Θ to set the shooting direction up and down.

By way of a variation, as shown in FIG. 4, if a user selects a two-dimensional shooting game from the plural game programs, the controlling unit 160 requests the user to input data such as an angle Θ to left and right to set the shooting direction of the user’s mobile terminal device 100, Node A for the target terminal device Node B in addition to setting the up and down shooting direction.

By way of another variation, as shown in FIG. 5, if a user selects a three-dimensional shooting game from the plural game programs, the controlling unit 160 requests the user to input data such as the shooting strength according to a distance d from the target terminal device Node B, and angles Θ to set the shooting direction up and down and left and right. Of course, the above described game data can be input or be adjusted during the game.

Subsequently, the user inputs game data necessary to run the desired game program, for example, according to the above-described process (S210). When the user inputs the game data, due to the feature of the shooting game, an angle should be relatively up for the long shooting distance and an angle should be relatively down for the short shooting distance.

If the game data are input by user’s key input, the controlling unit 160 transmits and receives a game signal to/from the target terminal device Node B through the local positioning unit 110, the direction unit 120 and the local communication unit 130 (S212).

In other words, the controlling unit 160 receives and stores position information of the user’s terminal device from a GPS satellite through the local positioning unit 110, calculates a distance d from the target terminal device Node B through the local communication unit 130 and controls up and down and/or left and right shooting directions of the mobile terminal device 100 through a geomagnetic sensor or an accelerometer sensor in the direction unit 120. In addition, according to a distance and the shooting strength acquired through the local positioning unit 110, a game signal corresponding to the shooting strength set by the user is transmitted to the target terminal device through the local communication unit 130. The screen and sound in running the game can be displayed or output through a display unit and a speaker equipped in the mobile telecommunication unit 150.

Next, the game program ends by a command of ending the game through user key input or when the game is over (S214).

As can be appreciated from the above description, a shooting game method and apparatus for a mobile terminal device using local positioning communication to run a shooting game by local positioning communication based on positions of a mobile terminal device and a neighboring mobile terminal device can be implemented according to an exemplary, non-limiting embodiment of the present invention.

Accordingly, as a user can enjoy a shooting game with a neighboring target terminal device using a user’s mobile terminal device, the user convenience can improve. In addition, an intelligent shooting game can be implemented using a position recognizing function of the mobile terminal device and also, instead of a stand-alone game, twosome or more games can be implemented.

While the invention has been shown and described with reference to certain embodiments thereof, it will be understood by those skilled in the art that various changes in form and details may be made therein without departing from the spirit and scope of the invention as defined by the appended claims. Therefore, the scope of the invention is given by the appended claims, rather than the preceding description, and all variations and equivalents which fall within the range of the claims are intended to be embraced therein.

What is claimed is:

1. A shooting game method, comprising: acquiring real time position information, and running a spatial game through a local communication with a target terminal device based on the acquired real time position information.

2. The shooting game method of claim 1, wherein the acquiring of the real time position information comprises receiving the present position information from a global positioning system (GPS) satellite.

3. The shooting game method of claim 1, wherein the acquiring of the real time position information comprises setting the present position as a reference point and performing local positioning communication with the target terminal device and neighboring terminal devices to acquire each position information according to a distance from each terminal device.

4. The shooting game method of claim 3, wherein the local positioning communication utilizes IEEE 802.15.4a.

5. The shooting game method of claim 1, wherein the running of the spatial game comprises running a one-dimensional shooting game based on data about the shooting.
strength according to a distance from the target terminal device, and data about an angle Θ to set an up and down shooting direction.

6. The shooting game method of claim 1, wherein the running of the spatial game comprises running a two-dimensional shooting game based on data about a first angle to set a left and right shooting direction, and data about a second angle to set an up and down shooting direction of the target terminal device.

7. The shooting game method of claim 1, wherein the running of the spatial game comprises running a three-dimensional shooting game based on data about a distance from the target terminal device according to the acquired real time position information, data about a first angle to set a left and right shooting direction of the target terminal device, and data about a second angle to set an up and down shooting direction of the target terminal device.

8. A mobile terminal device capable of executing a local communication shooting game, comprising:

a local positioning unit which calculates a present position;

direction unit which sets an angle of a shooting direction;

a local communication unit which transmits and receiving a game signal to/from a target terminal device in a local area;

a game program unit which stores a plurality of game programs;

a mobile telecommunication unit which communicates with other mobile terminal devices through a mobile telecommunication network; and

a controlling unit which calculates a distance from the target terminal device based on the present position, and which controls transmission and reception of at least one game signal according to the shooting angle and a shooting strength to/from the target terminal device.

9. The mobile terminal device of claim 8, wherein the local communication unit performs local positioning communication with neighboring terminal devices to calculate the present position and the distance from the target terminal device.

10. The mobile terminal device of claim 8, wherein the local positioning unit receives the present position information from a global positioning system (GPS) satellite.

11. The mobile terminal device of claim 8, wherein the controlling unit sets the present position as a reference point and performs local positioning communication with the target terminal device and neighboring terminal devices through the local communication unit to acquire each position information according to the distance from each terminal device.

12. The mobile terminal device of claim 8, wherein the controlling unit runs a one-dimensional shooting game based on data about the shooting strength according to the distance from the target terminal device, and data about the shooting angle, which is an up and down shooting direction.

13. The mobile terminal device of claim 8, wherein the controlling unit runs a two-dimensional shooting game based on data about the shooting angle comprising data about a first angle to set a left and right shooting direction and data about a second angle to set an up and down shooting direction of the target terminal device.

14. The mobile terminal device of claim 8, wherein the controlling unit runs a three-dimensional shooting game based on data about the distance from the target terminal device according to the present position, data about the shooting angle comprising data about a first angle to set a left and right shooting direction of the target terminal device and data about a second angle to set an up and down shooting direction of the target terminal device.

15. A mobile terminal device comprising:

means for calculating a present position;

means for setting an angle of a shooting direction;

means for transmitting and receiving a game signal to/from a target terminal device in a local area;

means for storing a plurality of game programs;

means for communicating with other mobile terminal devices through a mobile telecommunication network; and

means for controlling to transmission and reception at least one of game signal according to the shooting angle.

16. The mobile terminal device according to claim 15, further comprising means for calculating a distance from the target terminal device based on the present position, and wherein the controlling means further control the transmission and reception of at least one game signal according to the shooting angle and shooting strength obtained from the calculated distance.

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