

TITLE OF THE INVENTION

GAME SOFTWARE AND GAME MACHINE

TECHNICAL FIELD

[0001]

This invention relates to game software and a game machine where sunlight is used as a parameter for game progress.

[0002]

"Game software" in the specification includes program itself and various kinds of data related to the program if necessary. It is not always necessary to relate "game software" to the data, but "game software" has always program. And, "the related various kinds of data" may be stored in a memory means, such as a ROM disc, together with the program. Furthermore, these data may be stored in an outside memory means so as to be freely read out through a communication medium means, such as the Internet.

BACKGROUND ART

[0003]

In such kind of a conventional known game program, an amount of the ultraviolet of the sunlight is accumulated and computed with an ultraviolet sensor, and a predetermined event is displayed on a display if the accumulated value of the ultraviolet exceeds

a predetermined value.

[0004]

But, in such game software, an event is merely executed according to accumulated points of the amount of the ultraviolet. For this reason, it is easy to predict an occurrence of an event for a player who has experienced an event once, and the player is prone to get tired in a short time.

[0005]

The object of the invention is to provide game software and a game machine with the sunlight as a parameter, where it is difficult to predict an occurrence of an event, thereby preventing from losing interests.

DISCLOSURE OF INVENTION

[0006]

One aspect of the invention is game software (BGP) for progressing a game according to a predetermined scenario on a screen of a display (3) by executing scenario development program through a computer (1) with which a sunlight sensor (29) is connected, comprising:

said software having program for getting said computer to execute the following procedures;

area input procedure for inputting an area (ARA) where a player lives through an input means which

is connected with said computer;

rainfall probability computing procedure for computing a rainfall probability corresponding to said area which has been inputted by said area input procedure;

sunlight judging procedure for judging as to whether or not said sunlight sensor receives the sunlight for a predetermined time (T1);

event execution judging procedure for computing and judging as to whether or not a rainfall event should be executed on the basis of said rainfall probability if said sunlight judging procedure judges said sunlight sensor not to receive the sunlight for a predetermined time; and

rainfall event execution procedure for executing said rainfall event in a predetermined said scenario if said event execution judging procedure judges that said rainfall event should be executed.
[0007]

According to this aspect of the invention, the rainfall probability is computed, corresponding to the area which a player inputs, and whether or not the rainfall event is executed is judged on the basis of the rainfall probability, so that the execution of the rainfall event is controlled by the rainfall probability even if the sunlight sensor connected with a computer does not receive the sunshine for

a constant time, and it is difficult for the player to predict the execution of the rainfall event, thereby extremely preventing from getting tired from the game.

[0008]

Besides, another aspect of the invention is the game software, wherein said game software has program for further getting said computer to execute an area rainfall computing procedure for searching and extracting a rainfall (RV) corresponding to said area where said player lives which has been inputted by said area input procedure from area rainfall data, and said rainfall probability computing procedure computes said rainfall probability corresponding to said area on the basis of said rainfall which has been searched and extracted.

[0009]

According to this aspect of the invention, the rainfall probability is computed from the rainfall (RV) of the area which is inputted by a player, so that the occurrence probability of the rainfall event changes according to the area inputted by the player. Then, an aspect of the area can be introduced in the game, thereby increasing interests of the game.

[0010]

Besides, another aspect of the invention is a game machine for progressing a game according to a

predetermined scenario on a screen of a display by executing scenario development program through a computer with which a sunlight sensor is connected, comprising:

area input means for inputting an area where a player lives through an input means which is connected with said computer;

rainfall probability computing means for computing a rainfall probability corresponding to said area which has been inputted by said area input means;

sunlight judging means for judging as to whether or not said sunlight sensor receives the sunlight for a predetermined time;

event execution judging means for computing and judging as to whether or not a rainfall event should be executed on the basis of said rainfall probability if said sunlight judging procedure judges said sunlight sensor not to receive the sunlight for a predetermined time; and

rainfall event execution means for executing said rainfall event in a predetermined said scenario if said event execution judging procedure judges that said rainfall event should be executed.

[0011]

According to this aspect of the invention, the rainfall probability is computed, corresponding to

the area which a player inputs, and whether or not the rainfall event is executed is judged on the basis of the rainfall probability, so that the execution of the event is controlled by the rainfall probability even if the sunlight sensor connected with a computer does not receive the sunshine for a constant time, and it is difficult for the player to predict the execution of the rainfall event, thereby extremely preventing from getting tired from the game.

[0012]

The number in parentheses shows the corresponding element in the drawings for the sake of convenience, accordingly, the present descriptions are not restricted and bound by the descriptions on the drawings. And, this invention should not be construed by reference numbers.

BRIEF DESCRIPTION OF DRAWINGS

[0013]

[Fig.1] Fig.1 is an external view of a portable game machine to which the invention is applied.

[Fig.2] Fig.2 is a control block diagram of the game machine of Fig.1.

[Fig.3] Fig.3 is a view of a game program cartridge.

[Fig.4] Fig.4 is a view showing a rainfall table.

[Fig.5] Fig.5 is a control flowchart showing an

instance of procedures for executing a rainfall event.

EXPLANATION OF REFERENCE NUMBERS

[0014]

1... ...computer (portable game machine)

3... ...display

4... ...input means (input device)

25... ...cartridge

29... ...sunlight sensor (ultraviolet sensor)

T1... ...predetermined time

RV... ...rainfall

BEST MODE FOR CARRYING OUT THE INVENTION

[0015]

Fig.1 shows a portable game machine as a game machine comprising a computer. As shown in Fig.2, a portable game machine 1 has a main body 2, a reflective liquid crystal display 3 attached to the main body 2 as a display unit, and an input device 4. The input device 4 has a direction indicating switch 5 and a plurality of push button switches 6a, 6b. The direction indicating switch 5 has a cross type of operation portion 5a and outputs a signal corresponding to each operation in up and down directions and in right and left directions of the operation member 5a (the operation of pushing down

each end portion of the upper portion, the lower portion, the right portion or the left portion of the operation member).

[0016]

A structure of such input device 4 is well-known, so various transformations are possible. For instance, four push buttons may be respectively located in upper and lower hands and in right and left hands, in place of the operation member 5a. The number of the push button switches 6a, 6b and their location may be changed in various forms. In the following explanation, the push button switch 6a is referred to as A button, and the push button switch 6b is as B button. If it is not necessary to differentiate both push buttons 6a, 6b from each other, but, each button is referred to as a button 6 in the following descriptions. And, the game machine 1 is provided with a power switch, an operation member for adjusting sound volume and the like, but these are omitted.

[0017]

Fig.2 shows a structure of a control unit 10 provided at the game machine 1. The control unit 10 is a computer making use of a microprocessor, main body of which is a CPU 11. A ROM 12 (read only memory) and a RAM 13 (random access memory) as main memories, an image processing circuit 14 and a sound processing

circuit 15 are respectively connected with the CPU 11 through a bus 16. A program necessary for basic control of the game machine 1 (booting processing, for instance) is stored in the ROM 12. A work area with respect to the CPU 11 is secured in the RAM 13. The image processing circuit 14 controls the liquid crystal display 3 according to a picturing instruction from the CPU 11 so as to display a predetermined image on its scope. The sound processing circuit 15 produces an analog sound signal according to a pronouncing instruction from the CPU 11 so as to output to a speaker 7.

[0018]

The respective switches 5, 6 of the input device 4 are connected with the CPU 11 through the bus 16, and the CPU 11 can thereby judge the state of operation of each switch 5, 6. Besides, an external memory 17, which is an object different from the control unit 10, is connected with the bus 16. The external memory 17 is stored in a cartridge 25 which is attachable and detachable to the main body 2, as shown in Fig.3, and a ROM 18 as memory medium and a RAM 19 (readable and writable storage element) as a reloadable user memory are stored therein. Various programs and various data which are necessary for execution of game software BGP are stored in the ROM 18 in advance. The reloadable ROM, such as a flash

memory, is used as the RAM 19, and save data of a game, for instance, are stored in the memory according to necessity. Various storage mediums, such as a magnetic storage medium, an optical storage medium and a photoelectric magnetic storage medium, may be used as the storage medium of the external memory 17, in addition to a semiconductor storage element. An interface circuit intervenes between the bus 16 and each element, if necessary, but this is not shown. Various kinds of control units 10 may be used without limiting to the above-mentioned structure.

[0019]

A communication control circuit 20 is connected with the CPU 11 through the bus 16 in order to connect the game machine 1 with a predetermined communication line, another game machine or the like. A communication connector 22 is connected with the communication control circuit 20 through a communication interface 21. As the communication control circuit 20, one functioning as a modem or a network interface by combining a DSP (digital signal processor) and software with each other, for instance, may be utilized. The communication connector 22 and/or the interface 21 may be provided as a peripheral equipment to be connected with the game machine 1 outside.

[0020]

As shown in Fig.3, the cartridge 25 has a case 26 made of resin, and the case 26 is free to be attached to and detached from the main body 2 of the portable game machine 1. The external memory 17 is stored inside the case 26, and a lower portion of the case 26 in the figure is a terminal portion 26a for connecting an electronic machine, such as the external memory 17 stored in the case, and the bus 16 of the control unit 10 with each other. An ultraviolet sensor 29 is provided at an exposure portion 26b on the upper portion of the case 26 in the figure, which is exposed outside the main body 2 when installing the cartridge 25 on the main body 2 of the portable game machine 1, and an A/D converter 30 stored in the cartridge 25 is connected with the ultraviolet sensor 29, as shown in Fig.2. The A/D converter 30 is connected with the terminal portion 26a, and is free to be connected with the bus 16 of the control unit 10 of the game machine 1.

[0021]

With the game machine 1 having such a structure, various kinds of games can be played on a picture of the display 3 by loading the program stored in the ROM 18 of the external memory 17 in the RAM 13 and executing the loaded with the CPU 11. Besides, the game machine 1 is connected with a predetermined

network, controlling the communication control circuit 20, so that messages can be exchanged and a battle type of game can be enjoyed between the game machine 1 and other one.

[0022]

The computer for executing the game software according to the invention is the portable game machine 1 as a game machine for home, for instance. Besides, the game machine 1 may not be a device dedicated for a game, but may be a device for playing back general music and images stored in a storage medium. Furthermore, any computer, such as a personal computer and a mobile phone, is available as long as game software can be executed thereby.

[0023]

Various kinds of programs and data of the game software BGP may be stored in any form as long as these can be read out by the function of the program of the game software BGP. These may be stored in the ROM 18 together with the program of the game software BGP as the present embodiment, or may be stored in an outside memory means, such as a server, which independent of the game machine 1 so as to download these programs and data in a memory, such as the RAM 13, through a communication medium means, such as the Internet with read program which is set in the game software BGP.

[0024]

After a predetermined initializing operation (such as the operation of power on) in the game machine 1, the CPU 11 firstly executes a predetermined initialization processing according to a program of the ROM 12. After finishing the initialization, the CPU 11 starts to read the game software BGP, which is stored in the ROM 18 of the external memory 17, and starts game processing according to this program. When a player operates the input device 4 for start of the game, the CPU 11 starts various controls necessary for execution of the game according to the routines of the game software BGP.

[0025]

The game software BGP as shown in Fig.2 shows only software elements which relates to the invention of ones comprising the game software BGP. That is, the game software BGP stores various programs and data which are necessary for execution of a game with the game software BGP, including ones shown in Fig.2.

[0026]

When starting the game, area designation program DDP of the game software BGP is booted. The area designation program DDP displays a message for inviting a player to input a resident area of the player on the display 3 through the CPU 11 and the image processing circuit 14. The player can select

his (her) own resident area of prefectures and states which are displayed on the display 3 as a list by moving a cursor which is displayed on the display 3 to a position where the resident area of the player is displayed with proper operation of the push button switch 6.

[0027]

When selecting own resident area by the player from the area representation on the display 3 (Step S1 of Fig.5), a selection signal S1 is inputted in the CPU 11 through the bus line 16. Receiving this signal, the area designation program DDP reads a rainfall table TBL out of the game software BGP, and searches and extracts the rainfall of the area where the player lives, which was selected by the player (Step S2 of Fig.5).

[0028]

The rainfall table TBL stores average rainfalls RVs for the respective areas ARA in countries (regions) which players live as areal rainfall data, as shown in Fig.4. The area designation program DDP immediately reads through the CPU 11 the rainfall RV of the area ARA which the player lives, the area being selected with the selection signal S1 by the player, out of the rainfall table TBL.

[0029]

The ultraviolet sensor 29 always detects the

ultraviolet volume radiated on the sensor 29 and outputs the detected value to the A/D converter 30. Sunlight continuation time measuring program LCP of the game software BGP always monitors volume of ultraviolet rays which is outputted from the A/D converter 30 through the CPU 11, and judges as to whether or not sunlight is presently shining on the portable game machine 1, that is, on the ultraviolet sensor 29 from the monitored value (Step S3 of Fig.5).
[0030]

In other words, in case where the ultraviolet sensor 29 of the cartridge 25 which is installed on the portable game machine 1 detects ultraviolet rays more than a predetermined value, that is, ultraviolet rays more than constant intensity, the sunlight continuation time measuring program LCP judges through the CPU 11 that the portable game machine 1 presently gets sunshine, and instructs a scenario development program SDP of the game software BGP to proceed with the game according to an usual game scenario (step S4 of Fig.5). The scenario development program SDP is a program for controlling scenario progress of the whole game, and the game scenario develops by this scenario development program SDP through the CPU 11.

[0031]

On the contrary, in case where the ultraviolet

sensor 29 of the cartridge 25 which is installed on the portable game machine 1 detects ultraviolet rays less than a predetermined value, that is, ultraviolet rays less than constant intensity, the sunlight continuation time measuring program LCP judges through the CPU 11 that the portable game machine 1 presently does not get sunshine, and starts to measure the time with a timer (not shown) (step S5 of Fig.5).

[0032]

The sunlight continuation time measuring program LCP judges whether or not the time measured by the timer reaches a predetermined time T1 (step S6 of Fig.5). If the judgment is that the time measured by the timer does not reach the predetermined time T1, the program returns to step S3 in Fig.5, the timer continues to measure the time so long as the sunlight continuation time measuring program LCP does not judge that the portable game machine 1 gets sunshine.

[0033]

In case where the time measured by the timer is judged to reach the predetermined time T1, the sunlight continuation time measuring program LCP instructs an event execution judging program EVP of the game software BGP to compute and judge whether or not a rainfall event should be executed in the game. Receiving this instruction, the event

execution judging program EVP computes a rainfall probability RR with a proper algorithm on the basis of the rainfall RV of the area where the player lives, which has been extracted from the area designation program DDP through the CPU 11 (Step S7 of Fig.5).

[0034]

The event execution judging program EVP basically computes the rainfall probability RR in the proportion of the amount of the rainfall RV of the area where the player lives. Besides, the program EVP computes the final rainfall probability RR on the basis of a state of a character operated by the player in the game, such as a state of possession of items, various kinds of parameters, HPs (hit points) or MPs (magic points), and experience points.

[0035]

After thus obtaining the rainfall probability RR, the event execution judging program EVP computes as to whether or not the rainfall event should be executed in a scenario of the game on the basis of the rainfall probability RR (Step S8 of Fig.5). If no execution of the rainfall event is determined as the result of the computation, nothing is executed and the processing finishes. In such a case, the scenario of the game is usually developed according to the scenario development program SDP.

[0036]

If the execution of the rainfall event is determined as the result of the computation on the contrary, the event execution judging program EVP interrupts the scenario development program SDP, and instructs the scenario development program SDP to execute the rainfall event. Receiving this instruction, the scenario development program SDP reads rainfall event program REP for executing the rainfall event which comprises the game software BGP through the CPU 11, and the rainfall event program REP executes the rainfall event in the scenario by displaying rain in a three-dimensional virtual space which has been produced by the game software BGP on the game screen on the display, that is, in the RAM 3 with an animation through the CPU 11 and the image processing circuit 14.

[0037]

Which event is executed in the rainfall event is optional. That is, the rainfall event program REP can execute various kinds of events through the CPU 11. For instance, an object of a character in the three-dimensional virtual space may be controlled to move so as to get out of the rain, a character operated by the player may be changed into another one, a magic may not be used or HPs (hit points) or MPs (magic points) may be reduced with passage of time due to abnormal status.

[0038]

The CPU 11 executes the sunlight continuation time measuring program LCP even during the execution of the rainfall event by the rainfall event program REP through the CPU 11, and judges as to whether or not the portable game machine 1, that is, the ultraviolet sensor 29 is presently receiving the sunshine (Step S10 of Fig.5). If the sunlight continuation time measuring program LCP judges that the portable game machine 1, that is, the ultraviolet sensor 29 is not presently receiving the sunshine, the rainfall event program REP continues to execute the rainfall event in Step S9 of Fig.5 through the CPU 11. If the judgment is that the portable game machine 1, that is, the ultraviolet sensor 29 is presently receiving the sunshine as a result of taking out the portable game machine 1 to the outside where the sunshine can be received by the player, the rainfall event program REP stops the execution of the rainfall event which is presently being executed through the CPU 11.

[0039]

If the stop of the rainfall event is instructed, the scenario development program SDP stops the execution of the rainfall event by the rainfall event program REP which is being executed, interrupting the usual scenario development, and returns to a mode where the usual scenario is executed (Step S11 of

Fig.5). When the rainfall event is stopped, the display of the rain on the display 3 with an animation is stopped.

[0040]

The scenario development program SDP can release a disadvantage state of a character, such as an abnormal status which occurred on a character during the rainfall event by the rainfall event program REP by receiving a predetermined strength or a predetermined time of the sunshine, that is, by giving the ultraviolet to the ultraviolet sensor 29. And, the sunlight continuation time measuring program LCP computes and judges the strength of the ultraviolet and the time of receiving the ultraviolet from the output of the ultraviolet sensor 29 through the CPU 11.

[0041]

In the above-mentioned embodiment, the CPU 11 comprises a game control unit, and the combination of the CPU 11 and specific software comprises various kinds of means of the game control unit, but at least a part of these means may be replaced by a logical circuit. Besides, the invention may be comprised as variously scaled game systems in addition to as a game system for home use.

INDUSTRIAL APPLICABILITY

[0042]

The invention can be utilized as an electronic game equipment utilizing a computer and recreational software to be executed through a computer.

CLAIMS

1. Game software for progressing a game according to a predetermined scenario on a screen of a display by executing scenario development program through a computer with which a sunlight sensor is connected, comprising:

said software having program for getting said computer to execute the following procedures;

area input procedure for inputting an area where a player lives through an input means which is connected with said computer;

rainfall probability computing procedure for computing a rainfall probability corresponding to said area which has been inputted by said area input procedure;

sunlight judging procedure for judging as to whether or not said sunlight sensor receives the sunlight for a predetermined time;

event execution judging procedure for computing and judging as to whether or not a rainfall event should be executed on the basis of said rainfall probability if said sunlight judging procedure judges said sunlight sensor not to receive the sunlight for a predetermined time; and

rainfall event execution procedure for executing said rainfall event in a predetermined said

scenario if said event execution judging procedure judges that said rainfall event should be executed.

2. The game software according to claim 1, wherein said game software has program for further getting said computer to execute an area rainfall computing procedure for searching and extracting a rainfall corresponding to said area where said player lives which has been inputted by said area input procedure from area rainfall data, and said rainfall probability computing procedure computes said rainfall probability corresponding to said area on the basis of said rainfall which has been searched and extracted.

3. A game machine for progressing a game according to a predetermined scenario on a screen of a display by executing scenario development program through a computer with which a sunlight sensor is connected, comprising:

area input means for inputting an area where a player lives through an input means which is connected with said computer;

rainfall probability computing means for computing a rainfall probability corresponding to said area which has been inputted by said area input means;

sunlight judging means for judging as to whether or not said sunlight sensor receives the sunlight for a predetermined time;

event execution judging means for computing and judging as to whether or not a rainfall event should be executed on the basis of said rainfall probability if said sunlight judging means judges said sunlight sensor not to receive the sunlight for a predetermined time; and

rainfall event execution means for executing said rainfall event in a predetermined said scenario if said event execution judging means judges that said rainfall event should be executed.