US 20020052238A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2002/0052238 A1**

MUROI (43) **Pub. Date: May 2, 2002**

(54) **ELECTRONIC GAME SYSTEM USING A TRADING-CARD-TYPE ELECTRONIC RECORDING MEDIUM**

(76) Inventor: **KUNIMASA MUROI**, HAMAMATSU (JP)

Correspondence Address:
DAVID L. FEHRMAN
MORRISON & FOERSTER LLP
555 WEST FIFTH STREET
SUITE 3500
LOS ANGELES, CA 90013-1024 (US)

(*) Notice: This is a publication of a continued prosecution application (CPA) filed under 37 CFR 1.53(d).

(21) Appl. No.: **09/260,441**

(22) Filed: **Mar. 2, 1999**

(30) **Foreign Application Priority Data**

Mar. 5, 1998 (JP) 10-071278

Publication Classification

(51) **Int. Cl.**[7] **A63F 9/24**

(52) **U.S. Cl.** **463/40**

(57) **ABSTRACT**

Game control section executes a game program on the basis of data relating to an object appearing in a game and a control signal given from a controller, to cause the game to progress and generate an image signal and sound signal. Display and sound generating section visually displays the image signal and audibly reproduce the sound signal. Electronic recording medium, in the form of a trading card, stores the data relating to the object that is caused to vary as the game progresses, and contains a memory capable of rewriting data stored therein. This electronic recording medium has an outer appearance similar to that of ordinary commercially-available trading cards. One object is allocated to a single electronic recording medium. The object-relating data represent values that define the attributes of the object appearing during the progression of a game. The attribute values are designed to vary as the game progresses. Data read/write section writes or reads, on the electronic recording medium, the object-relating data stored in the game control section.

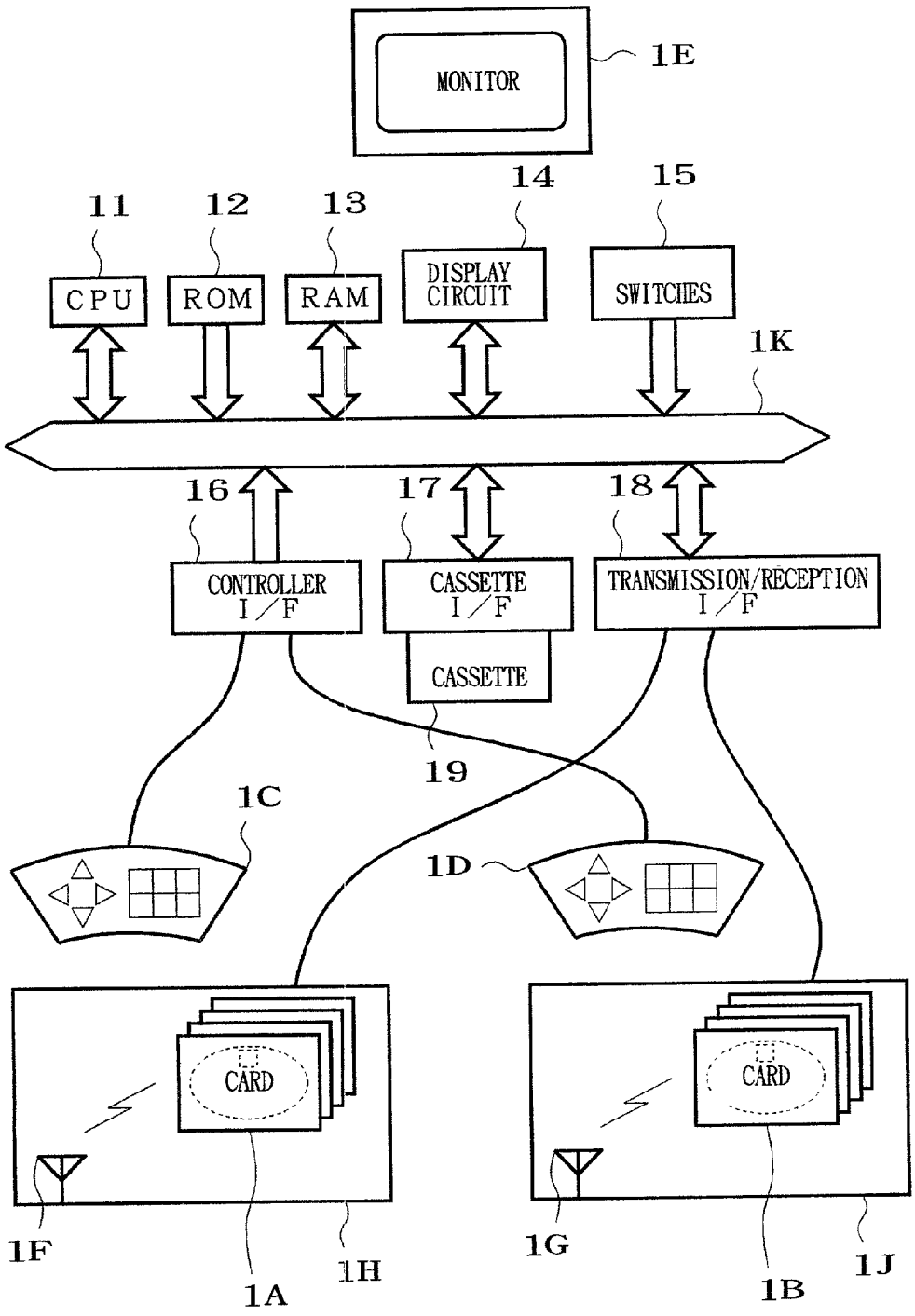
MONITOR
1E
11
12
13
14
15
CPU
ROM
RAM
DISPLAY CIRCUIT
SWITCHES
1K
16
17
18
CONTROLLER I/F
CASSETTE I/F
TRANSMISSION/RECEPTION I/F
CASSETTE
19
1C
1D
CARD
CARD
1F
1A
1H
1G
1B
1J

FIG. 1

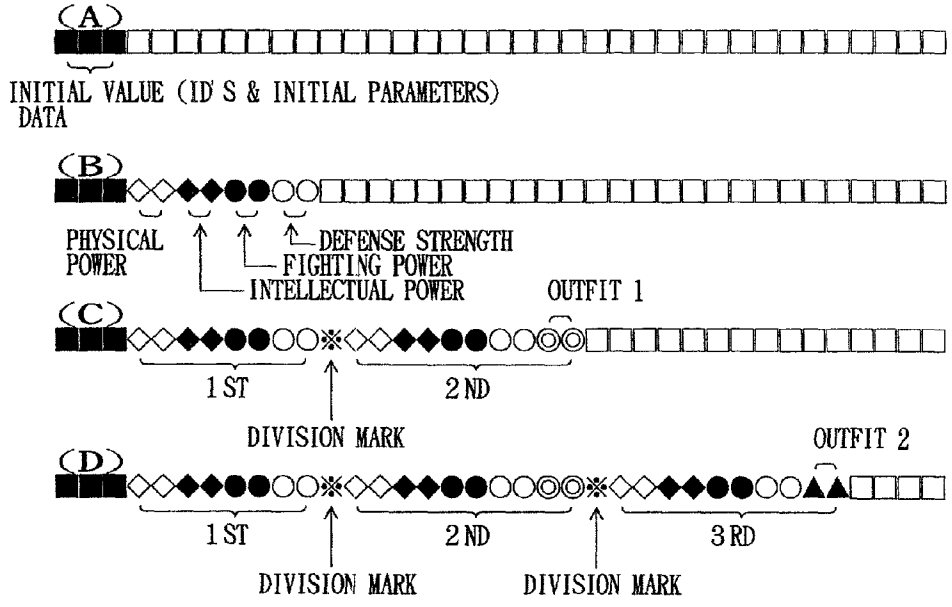
(A)
INITIAL VALUE (ID'S & INITIAL PARAMETERS)
DATA
(B)
PHYSICAL POWER
DEFENSE STRENGTH
FIGHTING POWER
INTELLECTUAL POWER
OUTFIT 1
(C)
1ST
2ND
DIVISION MARK
OUTFIT 2
(D)
1ST
2ND
3RD
DIVISION MARK
DIVISION MARK

FIG. 2

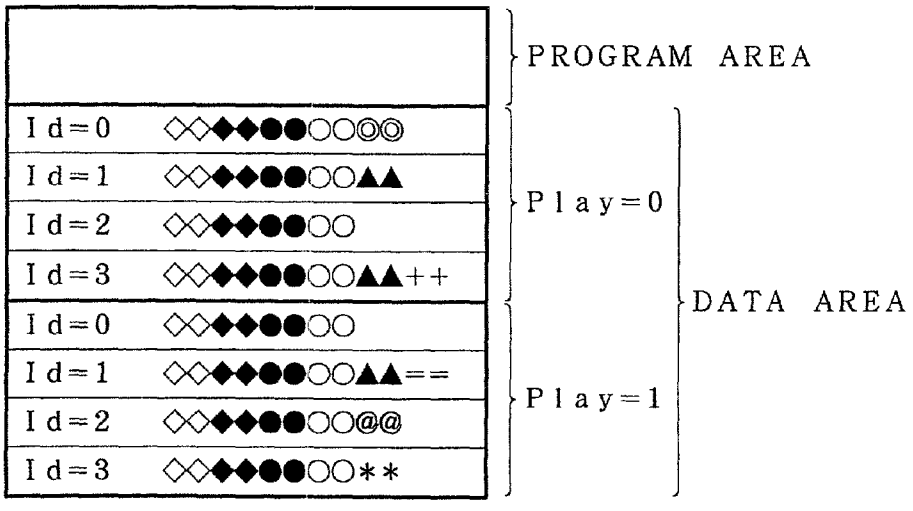
PROGRAM AREA
Id=0
Id=1
Id=2
Id=3
Id=0
Id=1
Id=2
Id=3
Play=0
Play=1
DATA AREA

FIG. 3

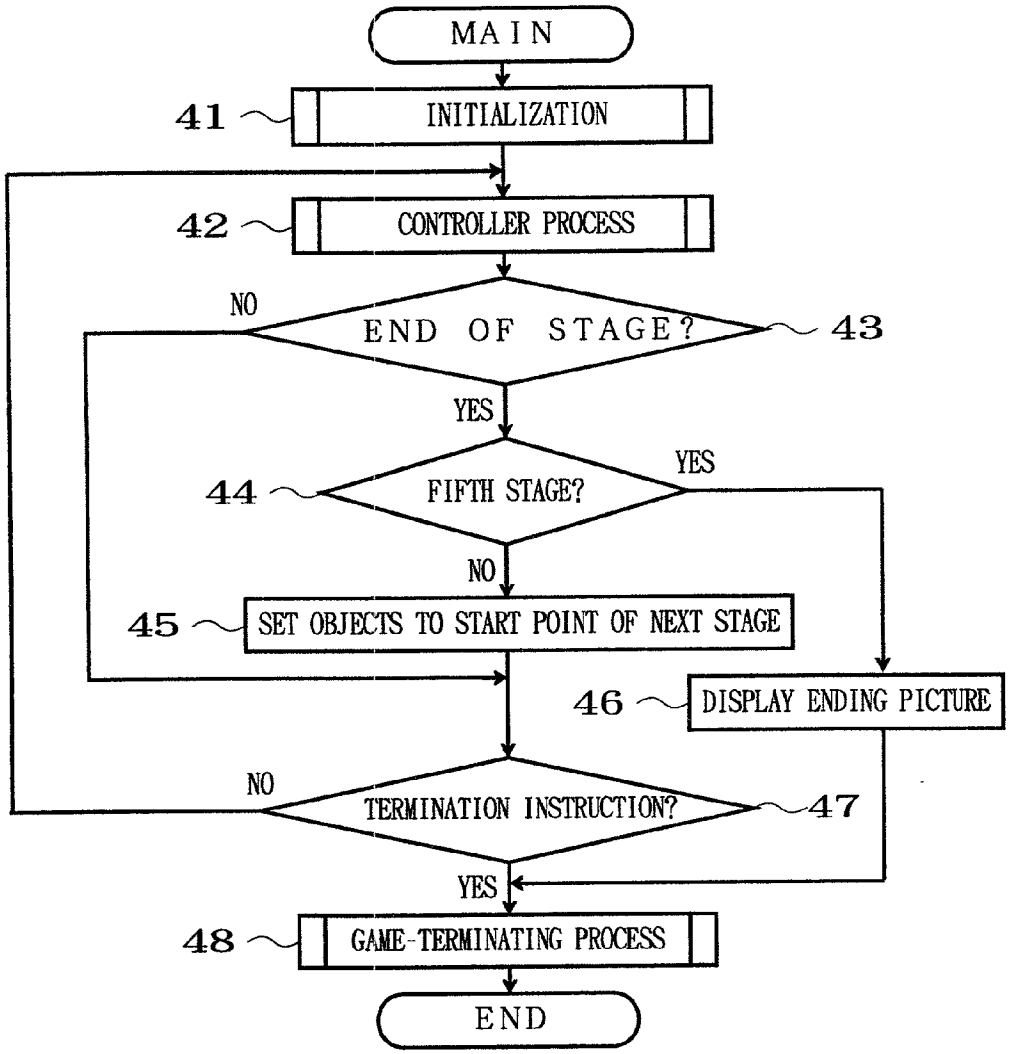
MAIN
41
INITIALIZATION
42
CONTROLLER PROCESS
NO
END OF STAGE?
43
YES
44
FIFTH STAGE?
YES
NO
45
SET OBJECTS TO START POINT OF NEXT STAGE
46
DISPLAY ENDING PICTURE
NO
TERMINATION INSTRUCTION?
47
YES
48
GAME-TERMINATING PROCESS
END

FIG. 4

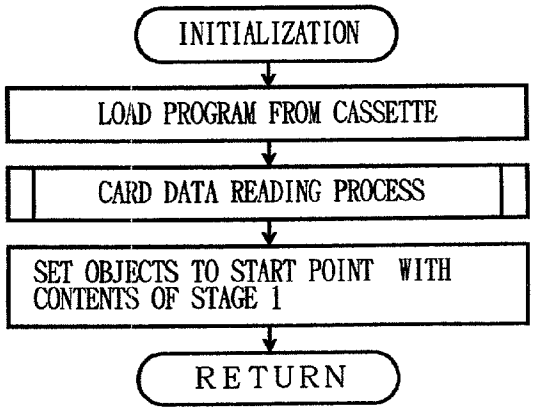
INITIALIZATION
LOAD PROGRAM FROM CASSETTE
CARD DATA READING PROCESS
SET OBJECTS TO START POINT WITH CONTENTS OF STAGE 1
RETURN

FIG. 5

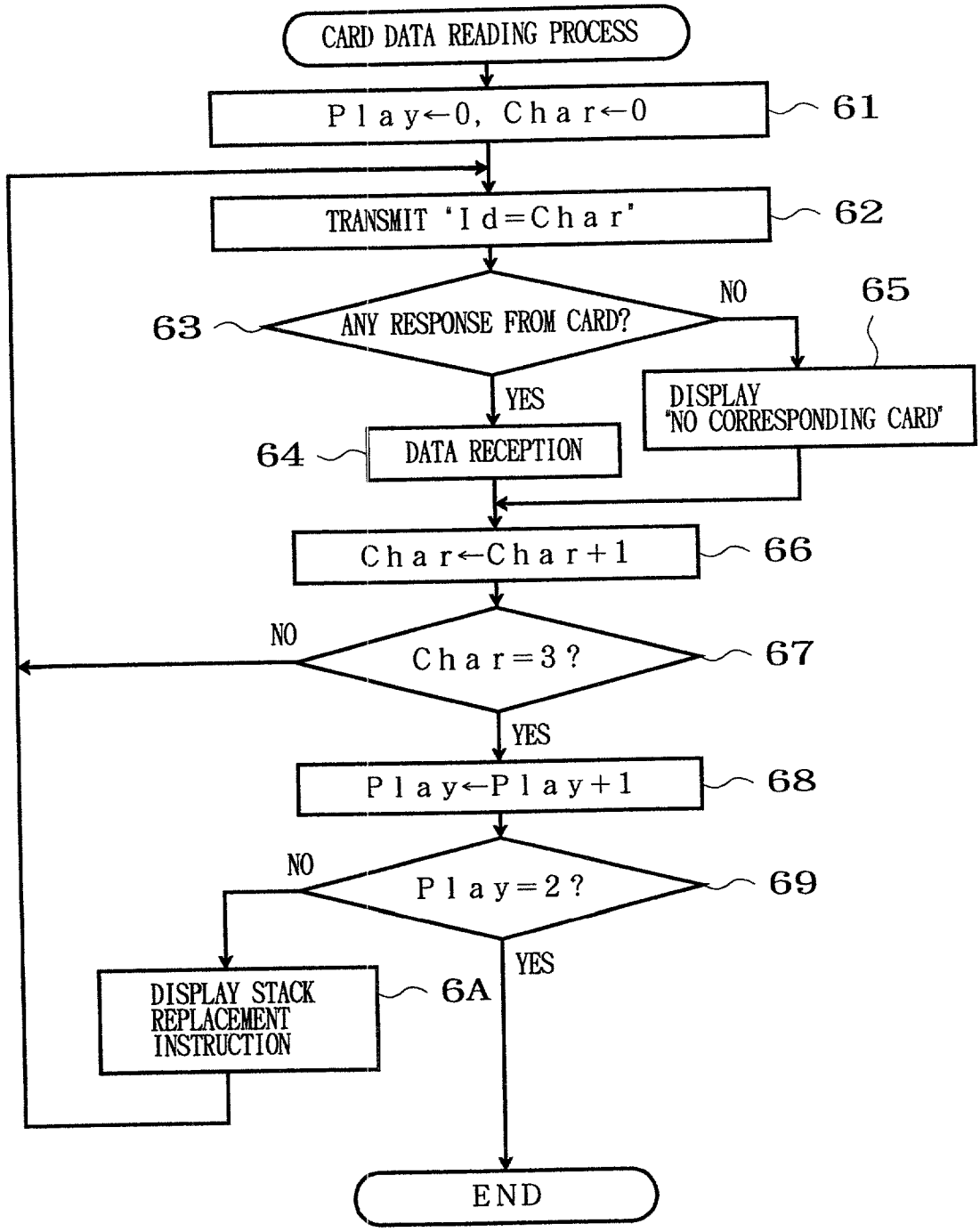
CARD DATA READING PROCESS
Play←0, Char←0
61
TRANSMIT 'Id=Char'
62
ANY RESPONSE FROM CARD?
63
NO
65
YES
DISPLAY 'NO CORRESPONDING CARD'
64
DATA RECEPTION
Char←Char+1
66
NO
Char=3?
67
YES
Play←Play+1
68
NO
Play=2?
69
YES
DISPLAY STACK REPLACEMENT INSTRUCTION
6A
END

FIG. 6

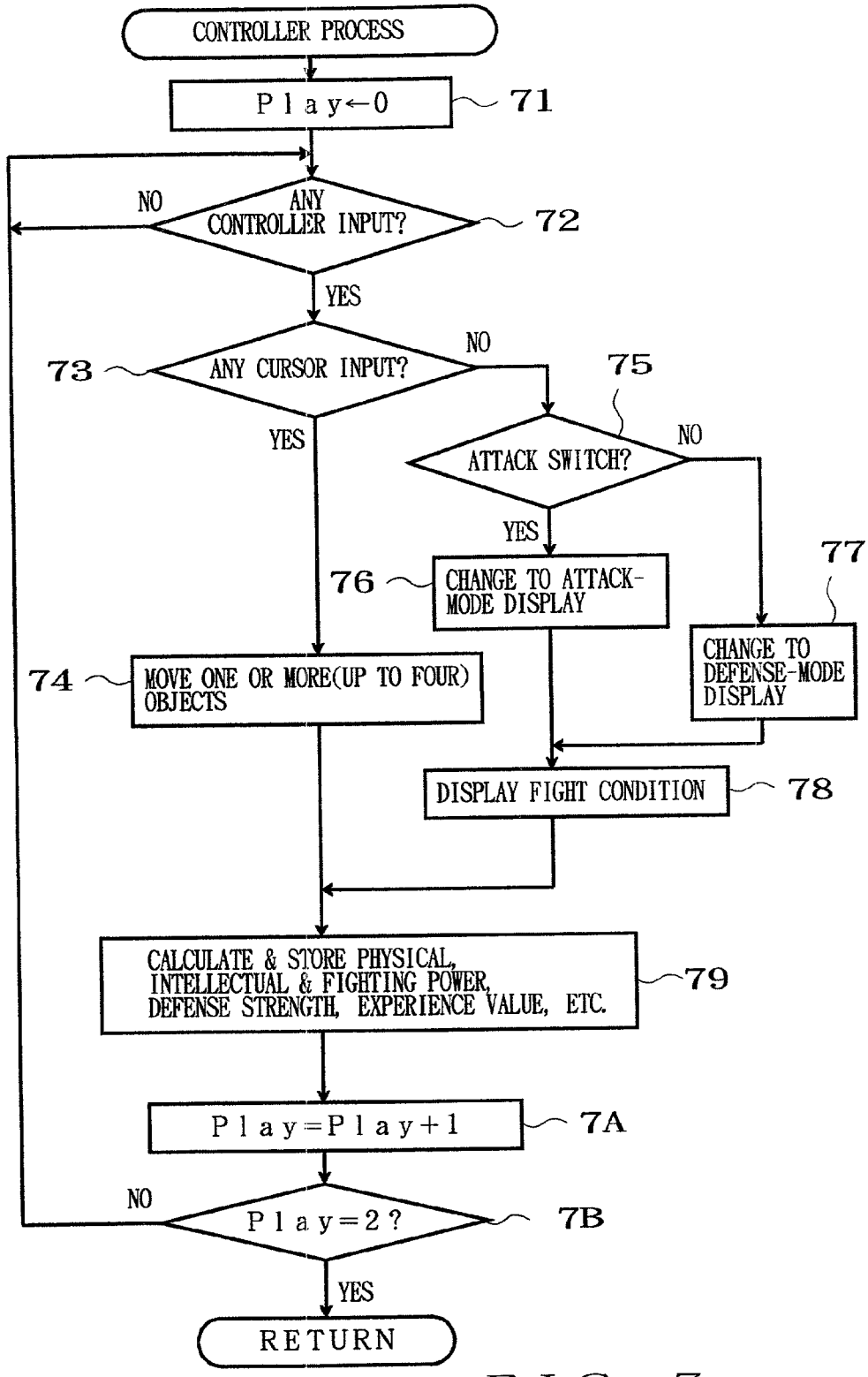
CONTROLLER PROCESS
Play←0
71
NO
ANY CONTROLLER INPUT?
72
YES
73
ANY CURSOR INPUT?
NO
75
YES
ATTACK SWITCH?
NO
YES
76
CHANGE TO ATTACK-MODE DISPLAY
77
CHANGE TO DEFENSE-MODE DISPLAY
74
MOVE ONE OR MORE(UP TO FOUR) OBJECTS
DISPLAY FIGHT CONDITION
78
CALCULATE & STORE PHYSICAL, INTELLECTUAL & FIGHTING POWER, DEFENSE STRENGTH, EXPERIENCE VALUE, ETC.
79
Play=Play+1
7A
NO
Play=2?
7B
YES
RETURN

FIG. 7

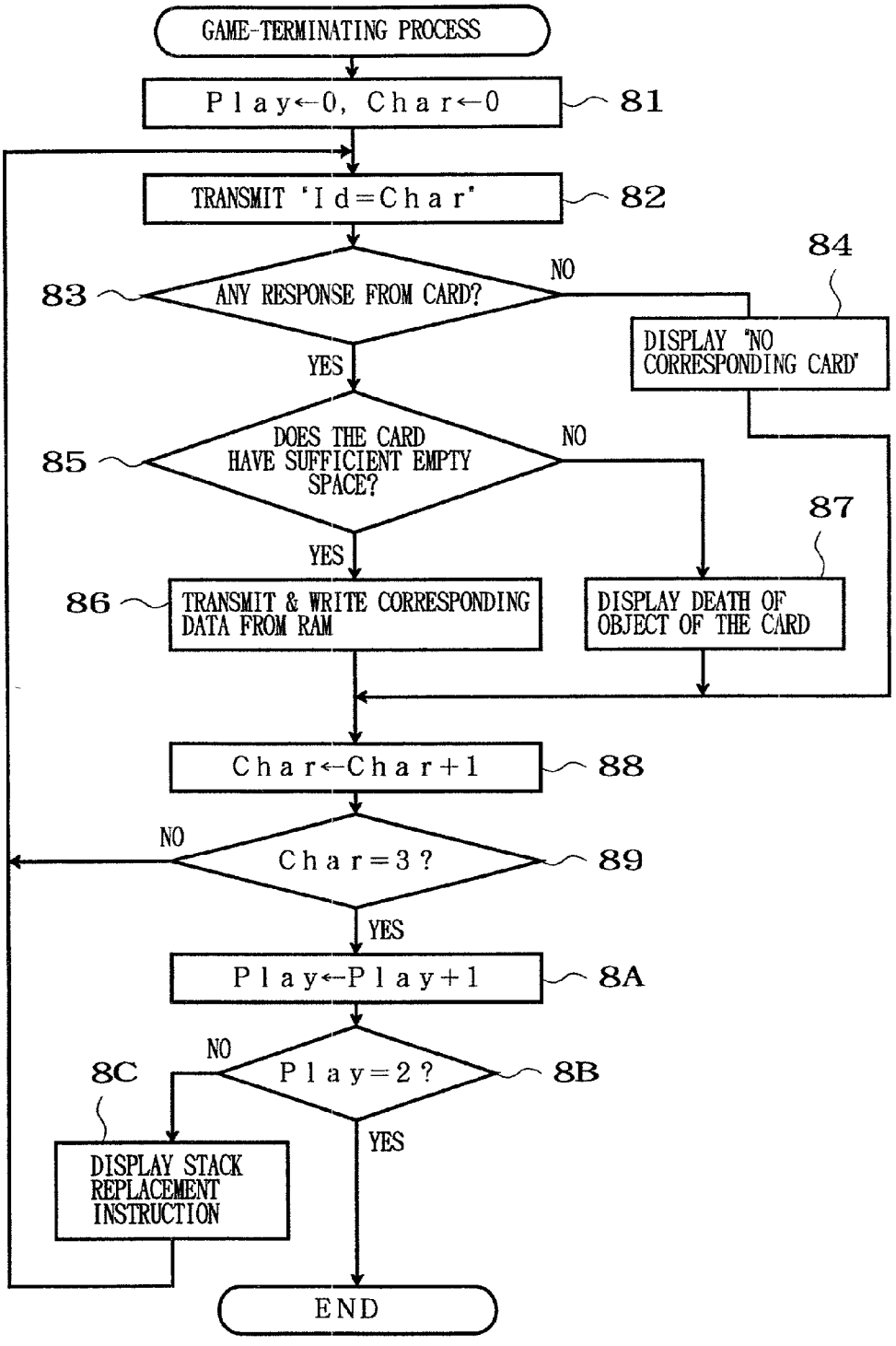
GAME-TERMINATING PROCESS
Play←0, Char←0
81
TRANSMIT 'Id=Char'
82
83
ANY RESPONSE FROM CARD?
NO
84
DISPLAY 'NO CORRESPONDING CARD'
YES
85
DOES THE CARD HAVE SUFFICIENT EMPTY SPACE?
NO
87
YES
86
TRANSMIT & WRITE CORRESPONDING DATA FROM RAM
DISPLAY DEATH OF OBJECT OF THE CARD
Char←Char+1
88
NO
Char=3?
89
YES
Play←Play+1
8A
NO
8C
Play=2?
8B
YES
DISPLAY STACK REPLACEMENT INSTRUCTION
END

FIG. 8

ELECTRONIC GAME SYSTEM USING A TRADING-CARD-TYPE ELECTRONIC RECORDING MEDIUM

BACKGROUND OF THE INVENTION

[0001] The present invention relates generally to electronic game systems for carrying out an electronic game based on a trading card that has uses both as a collection and as a game tool, and more particularly to an improved electronic game system which can variably store data on a trading card and carry out a game based on the stored data using a personal computer, game machine or the like.

[0002] For many years, trading card collections have been a favorite pastime for a number of collectors including adults as well as children. Among examples of such trading cards are "sports cards" having a photograph, performance data and personal information of a sports player in baseball, basketball or American football visibly printed thereon, and "character cards" having an animation (animated cartoon) character printed thereon. Recently, more sophisticated trading cards have made their appearance, which have, in addition to a use as a collection, a use or function as a tool for a so-called fight-type game. These trading cards are sold not only for a mere collection purpose but also as an important game tool which can decide a contest or bout or influence progression of the game on the basis of various information specifically written on the card.

[0003] With such trading cards, however, various pictures, patterns, designs and other information are printed in a fixed hard-copy form and thus can not be varied at all. For this reason, it has been conventional to change the characteristics of the trading card by using it in combination with another special card. Thus, once the combination with the special card is cancelled, the changes so far made to the information become invalid, which would undesirably result in the problem that continuity of the game can not be maintained any longer.

SUMMARY OF THE INVENTION

[0004] It is therefore an object of the present invention to provide an electronic game system which, in accordance with progression of a game, can variously rewrite data recorded on a trading card.

[0005] According to an aspect of the present invention, there is provided an electronic game system which comprises: a game control section that executes a game program on the basis of data relating to an object appearing in a game and a control signal given from a controller, to cause the game to progress and generate an image signal and a sound signal; a display and sound generating section that visually displays the image signal and audibly reproduce the sound signal; a trading-card-type electronic recording medium that stores thereon the data relating to the object caused to vary as the game progresses; and a data read/write section that writes, onto the electronic recording medium, the data relating to the object stored in the game control section, or reads out, from said electronic recording medium, the data relating to the object.

[0006] The trading-card-type electronic recording medium for use in the present invention is a card containing a rewritable memory (capable of rewriting data stored therein) and is similar in outer appearance to ordinary trading cards commercially available today. For example, the electronic recording medium may be implemented, for example, by a transponder conventionally used in a radio frequency identification (often abbreviated RFID) system. The electronic recording medium has prestored thereon data relating to an object appearing in a game, and one object is allocated to a single electronic recording medium. The object-relating data represents a value that defines an attribute of the object appearing during the progression of the game. The attribute value is caused to vary as the game progresses. The object-relating data (value defining the attribute of the character) varying in accordance with the progression of the game is stored onto the electronic recording medium by means of the data read/write section, so that even when the game is suspended on the way, the data at the suspended point can be stored onto the recording medium. The thus-stored data is read out by the read/write section when the game is to be resumed, and then supplied to the game control section. As a consequence, the data recorded on the trading card can be rewritten variously in accordance with the progression of the game, so that unlike in the traditional electronic game systems, the present invention allows each attribute of the card to be freely changed depending on the progressing state of the game.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] For better understanding of the above and other features of the present invention, the preferred embodiments of the invention will be described in greater detail below with reference to the accompanying drawings, in which:

[0008] **FIG. 1** is a block diagram showing an exemplary general hardware setup of an electronic card game system in accordance with a preferred embodiment of the present invention;

[0009] **FIG. 2** is a diagram showing data that are sequentially recorded into a memory region of a transponder as a game progresses;

[0010] **FIG. 3** is a diagram showing an exemplary data organization during the progression of the game;

[0011] **FIG. 4** is a flow chart showing an example of a main routine of the electronic card game system;

[0012] **FIG. 5** is a flow chart showing the details of an initialization process of **FIG. 4**;

[0013] **FIG. 6** is a flow chart showing the details of a card data reading process of **FIG. 5**;

[0014] **FIG. 7** is a flow chart of a controller process of **FIG. 4**; and

[0015] **FIG. 8** is a flow chart of a game terminating process of **FIG. 4**.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0016] **FIG. 1** is a block diagram showing an example of a general hardware setup of an electronic card game system in accordance with an embodiment of the present invention. In the embodiment, various operations are carried out under the control of a microcomputer that includes a microprocessor unit (CPU) **11**, a program memory (ROM) **12** and a

working memory (RAM) **13**. The CPU **11** is a main CPU which controls the operations in the entire electronic card game system. To the CPU **11** are connected, via a data and address bus **1**K, the program memory (ROM) **12**, the working memory (RAM) **13**, a display circuit **14**, various switches (switch group) **15**, a controller interface (I/F) **16**, a cassette interface **17** and a transmission/reception interface **18**.

[**0017**] On the basis of various programs and data stored in the program memory **12** and working memory **13**, the CPU **11** controls the operations in the entire electronic card game system. The working memory **13** receives and stores various programs and data via the controller interface **16**, and a transmission/reception interface **18**. Whereas this embodiment will be described below in relation to the case where a basic game program is read in or introduced through the transmission/reception interface **18**, the game program may be read in using any other external storage device such as a floppy disk drive, hard disk drive, CD-ROM drive, magneto-optical disk (MO) drive, ZIP drive or PD drive. Further, rather than from such a portable recording medium, operating programs and other related information may be downloaded, via a communication interface, from a communication network (personal computer communication network or Internet) to a storage device such as a hard disk device.

[**0018**] On the basis of the game program and data received via the cassette interface **17** from a cassette **19** and various data received via the cassette interface **17** and various data received from cards **1**A and **1**B via the transmission/reception interface **18** as well as control signals received via the controller interface from controllers **1**C and **1**D, the CPU **11** performs arithmetic operations for processing and advancing a game including image processing to supply image signals to the display circuit **14**, which, in turn, visually demonstrates on a monitor **1**E images or pictures related to a game. Data of music sounds and various effect sounds are supplied from a sound generation processing circuit (not shown) to the monitor **1**E and audibly reproduced through a speaker (also not shown).

[**0019**] The program memory **12** is a read-only memory (ROM), in which are stored system-related programs for execution by the CPU **11**. The working memory **13** is for temporarily storing various data that are generated as the CPU **11** runs the programs. Predetermined address areas in a random access memory (RAM) are allocated as this working memory **13** for use as various registers and flags. It will be appreciated that the various data generated during execution of the programs include data resulting from arithmetic operations, a game program received from an external source, data related to development or progression of a game and image data relating to characters appearing in the game as well as background pictures.

[**0020**] The display circuit **14** controls the visual display on the monitor **1**E and includes an image display processor and a sound processor. The monitor **1**E comprises a liquid crystal display (LCD), CRT or the like which is controlled by the display circuit **14**. The switches **15** include a reset switch and a power switch provided on the body of the electronic card game device, and these switches **15** output switch event signals corresponding to their respective operating states. Various operations corresponding to the switch event signals are carried out by the CPU **11**. The controller **16** receives data from the controllers **1**C and **1**D having four direction input keys and various event switches and passes the received data onto the data and address bus **1**K. The cassette interface **17** receives a given game program and data from the cassette **19** and then passes the received data onto the data and address bus **1**K. These data and game program thus introduced via the controller interface **16** and cassette interface **17** are written into the working memory **13** via the CPU **11**.

[**0021**] The above-described components are common to those employed in the conventionally-known electronic game devices. The electronic card game system in accordance with the present invention is different from the known game devices primarily in that it includes a radio frequency identification (hereinafter, RFID) system which includes data read/write sections **1**H and **1**J and transponders **1**A and **1**B. This RFID system is a well-known system and thus will be explained only briefly. The transponders **1**A and **1**B are each a card-type recording medium that includes a semiconductor integrated circuit with a transmission/reception circuit, control circuit and memory all incorporated in a single chip and a printed antenna for transmitting/receiving an electromagnetic wave. Each of the transponders **1**A and **1**B can generate electric power by the electromagnetic wave received via the printed antenna and uses the thus-generated power to rewrite data stored in the memory or transmit the memory-stored data in a response electromagnetic wave. Each of the data read/write sections **1**H and **1**J exchanges data with the corresponding transponders **1**A, **1**B via the antenna **1**F, **1**G. The data to be transmitted or received are controlled by the CPU **11** via the transmission/reception interface **18**. Note that each of the data read/write sections **1**H, **1**J is arranged to select any one of the corresponding transponders **1**A, **1**B and read or write data onto the selected transponder. For details of the technique relating to the RFID system, see Japanese Patent Laid-open Publication No. HEI-8-21875.

[**0022**] **FIG. 2** shows data that are sequentially recorded into a memory region of the transponder **1**A, **1**B as the game progresses. For the purpose of explanation, let's assume here that the game program read out from the cassette **19** is directed to a role-playing game made up of a total of five stages where four objects, i.e., brave man, a warrior, a wizard, and a priest, are caused to sequentially move in a single party from the first stage to the fifth stage while struggling against each other for a treasure placed in the last chapter of the fifth stage. Whereas the following description is given in relation to a case where two players participate in the game, the game may of course be played among three or more players. Further, the game may be played among a plurality of players through a communication network such as the Internet. According to the game program, each of the objects are supposed to fight against any enemies randomly output by the CPU **11**, and when the players confront each other during the course of the game, they are supposed to get ready for a fight but may either actually fight against each other or avoid fighting.

[**0023**] Part (A) of **FIG. 2** shows an initial state where no substantive data has been written in the transponders; the transponders in such initial state have stored therein initial value data, such as ID numbers and initial parameters. In the illustrated example, ID numbers "0", "1", "2" and "3" represent the brave man, warrior, wizard and priest, respec-

tively. These ID numbers may either be prestored on the cards or be additionally written onto the cards. The game can be advanced even when all the ID numbers from "0" to "3" are not present, but any of the ID numbers is not allowed to exist redundantly; namely, two or more transponders of a same ID number can not be set in the data read/write sections **1**H and **1**J. In case two or more transponders having a same ID number are detected, an error message is displayed so as to instruct a selection of any one of the transponders.

[**0024**] Part (B) of **FIG. 2** shows how, after the game is started with the initial-state transponders set in the data read/write sections **1**H and **1**J, values representative of four attributes—physical power, intellectual power, fighting power and defensive strength—of one of the objects having evolved on the basis of experiences gained in accordance with the progression of the game are written in the memory region of the corresponding transponder upon completion of the game. Part (C) shows values of the attributes written in the transponder memory region upon completion of a second playing or round of the game, where the attribute values in the second round are written as distinguished from those in the first round of the game by a division mark (·X·). Note that the attribute values are different between the first and second rounds of the game and that fighting outfit **1** newly obtained by the corresponding object has been added as a new attribute value at the value writing for the second round. Further, part (D) shows values of the attributes written in the transponder memory region upon completion of a third round of the game, where the attribute values in the third round are written as distinguished from those in the first and second rounds of the game by division marks (·X·). Note that the attribute values for the third round are different from those for the first and second rounds of the game and that fighting outfit **1** so far possessed by the corresponding object has evolved into fighting outfit **2** at the value writing for the third round. In this way, the attribute values of each of the objects, allocated to one of the transponders, are caused to gradually vary as the game progresses, and the varied attribute values are written into the memory region of the corresponding transponder upon completion of the game. As a consequence, there can be created a transponder, i.e., a card, with the object's attributes varied in accordance with the progression of the game.

[**0025**] **FIG. 3** is a diagram showing an exemplary data organization in the working memory **13** during the progression of the game. **FIG. 3** shows a program area for storing a game program, and a data area for storing current attribute values of the individual objects uniquely identified by their respective unique ID numbers ("Id=0" to "Id=3"). In the data area of the illustrated example, there are being stored the attribute values of the individual objects ("Id=0" to "Id=3") associated with a first player ("Play=0") and a second player ("Play=1"). The attribute values being thus stored in the data area are written into the memory regions of the transponders (or cards) corresponding to the objects.

[**0026**] Now, various operations performed by the CPU **11** in the electronic card game system will be described below merely by way of example, with reference to flow charts of FIGS. **4** to **8**. The "card" in the flow charts of FIGS. **4** to **8** refers to the transponder.

[**0027**] **FIG. 4** shows an example of a main routine of the card game system. First, upon turning ON of the power switch in the switch group **15** of **FIG. 1**, the main routine is initiated, where an initialization process is carried out at first step **41** as shown in **FIG. 5**. Specifically, in the initialization process of **FIG. 5**, the game program prestored in the cassette **19** is loaded and stored into a predetermined area of the working memory **13**. Upon completion of the game program loading, a card data reading process is carried out, where data relating to the individual transponders now set in the data read/write sections **1**H and **1**J are loaded and stored into a predetermined area of the working memory **13**.

[**0028**] **FIG. 6** shows the details of the card data reading process, where a value "0" is set, at first step **61**, to both a player register Play and a character register Char. Then, at step **62**, the value stored in the character register Char is transmitted, as an ID number Id, to the data read/write sections **1**H and **1**J, which in turn ascertain whether or not the corresponding group of transponders **1**A or **1**B contains a transponder of the transmitted ID number Id. If there is such a transponder, then the data read/write section **1**H or **1**J reads out the data of that transponder and transmits the read-out data to the CPU **11**. Therefore, at next step **63**, a determination is made as to whether there has been any response from the card or transponder. If answered in the affirmative (YES) at step **63**, the data of the transponder are received by the CPU **11**, but if not, a message "No Corresponding Card" is displayed on the monitor **1**E to inform the human operator that there is no card of the ID number Id. Then, the value of the character register Char is incremented by one at next step **66**, and it is further determined at step **67** whether the incremented value has now reached "3". If the incremented value of the character register Char is "1" or "2", but not "3", as determined at step **67**, the CPU **11** loops back to step **62** to repeat operations similar to the above-mentioned. If, however, the incremented value of the character register Char has now reached "3", the CPU **11** proceeds to step **68**.

[**0029**] At step **68**, the value of the player register Play is incremented by one, and it is determined at step **69** whether the incremented value of the player register Play is "2".If the incremented value of the player register Play is still "1", the CPU **11** reverts to step **62** in order to read out the data from the second player's transponder and then repeat operations similar to the above-mentioned. Step **6**A, shown in **FIG. 6** as being taken when a negative determination is made at step **69**, is performed where only one data read/write section **1**H or **1**J is provided in the game system. Step **6**A is directed to displaying on the monitor **1**E an instruction to the human operator that the combination (stack) of the transponders, currently set in the data read/write section, should be replaced with another stack. By such an operation of step **6**A, it is possible to sequentially read out data associated with two or more players even where the game system includes only one data read/write section. Thus, in the case where two separate data read/write sections **1**H and **1**J are provided for two players as in the example of **FIG. 1**, the stack replacement instructing operation of step **6**A may be omitted. After completion of the above-mentioned operations, the CPU **11** proceeds to the last step of **FIG. 5** in order to set the individual objects to a predetermined start point of the game with predetermined contents of the first stage. Thus, the initialization process at step **41** of **FIG. 4** has been completed and the electronic card game system has now been placed in a standby state and waits for a start of the game.

[0030] At step **42** of the main routine, the CPU **11** carries out a controller process in response to signals from the controllers **1**C and **1**D, as more fully shown in **FIG. 7**. First, the player register Play is set to a value "0" at first step **71** of the controller process. Then, it is determined at step **72** whether any signal has been received from the controller **1**C or **1**D, i.e., whether there has been any controller input. If answered in the affirmative (YES), the CPU **11** moves to step **73**, but if not (NO), the CPU **11** repeats the operation of step **72** until a signal is received from the controller **1**C corresponding to the first player (Play-**0**), here, the controller **1**D outputs a signal corresponding to the second player (Play-**1**). At step **73**, it is ascertained whether or not the controller input is based on actuation of one of the four direction cursor keys on the controller **1**C, **1**D. If so, i.e., if the controller input is a cursor input (YES), the CPU **11** goes to step **74**; otherwise, the CPU **11** branches to step **75**. At step **74**, one or a plurality of (up to four) objects, i.e., characters, set in the initialization process of step **41** are moved on the monitor **1**E over a distance corresponding to the amount of movement of the direction cursor key.

[0031] Then, at step **75**, a determination is made as to whether the input from the controller **1**C, **1**D is based on actuation of an attack switch or an defense switch. If the controller input is based on the actuation of the attack switch as determined at step **75**, then the CPU **11** changes the display of the objects into an attack-mode display. If, on the other hand, the controller input is based on the actuation of the defense switch, the CPU **11** changes the display of the objects into a defense-mode display. This display mode change sets the objects in an appropriate attack or defense position, and the thus-set current fighting condition is displayed at step **78**.

[0032] At next step **79**, the CPU **11** calculates values of the attributes (physical power, intellectual power, fighting power and defensive strength) of the individual objects having varied through the object moving operation of step **74** or the fighting condition displaying operation of step **78**, with which the CPU **11** rewrites the corresponding data stored in the working memory **13**. One example of the thus-rewritten data in the working memory **13** is shown in **FIG. 3**. It will be appreciated that mere movement of the objects on the monitor screen does not always change the attribute values. The value of the player register Play is incremented by one at step **7**A following step **79**, and then it is ascertained at step **7**B whether the incremented value of the player register Play has now reached "2". If the incremented value of the player register Play is still "1" as ascertained at step **7**B, operations similar to the above-mentioned are repeated depending on presence or absence of a controller input from the controller **1**D of the second player. If the incremented value of the player register Play has reached "2", the CPU **11** moves on to step **43** of **FIG. 4**.

[0033] At step **43** of the main routine, a determination is made as to whether the game has progressed to the last section of the currently played stage. If so, the CPU **11** goes to next step **44**, but if not, the CPU **11** jumps to step **47**. At step **44**, it is determined whether the currently played stage is the last or fifth stage. If so, it means that the game has now come to the end of the game, and the CPU **11** displays an ending picture on the monitor **1**E and proceeds to step **48** in order to terminate the game. If, on the other hand, the currently played stage is not the fifth stage as determined at step **44**, the individual objects are set, at following step **45**, to a predetermined start point of the next stage. At step **47**, a determination is made as to whether or not there has been an instruction to terminate the game. If answered in the negative, the CPU **11** loops back to step **42** to repeat operations similar to the above-mentioned. If, however, there has been such an instruction as determined at step **47**, the CPU **11** moves to step **48** in order to terminate the game through a game terminating process.

[0034] **FIG. 8** shows the details of the game terminating process of step **48**, where a value "0" is set, at first step **81**, to the player register Play and character register Char. Then, at step **82**, the value stored in the character register Char is transmitted, as an ID number Id, to the data read/write sections **1**H and **1**J, which in turn ascertain at step **83** whether or not the corresponding group of transponders **1**A or **1**B contains a transponder of the transmitted ID number Id. If there is no such transponder, the CPU **11** goes to step **84** to display a message "No Corresponding Card" on the monitor **1**E in order to inform the human operator that there is no card of the ID number Id. If, on the other hand, there is such a transponder, then the CPU **11** ascertains at step **85** whether the transponder of the ID number in question has an empty space sufficient for storing the transmitted data. If so, the CPU proceeds to step **86**, where it reads out, from the working memory **13**, those data corresponding to the respective attribute values of the individual objects rewritten at step **79** of **FIG. 7** and transmits the read-out data to the data read/write section **1**H, **1**J for storage on the transponder in question. If there is not a sufficient empty space in the transponder, the transmitted data can not be written onto the transponder and it means that the object of that transponder is dead, so that the CPU **11** displays a message indicative of the death of the object on the monitor **1**E. Then, the value of the character register Char is incremented by one at next step **88**, and it is determined at step **89** whether the incremented value has now reached "3". If the incremented value of the character register Char is "1" or "2", but not "3", as determined at step **89**, the CPU **11** loops back to step **82** to repeat operations similar to the above-mentioned. If, however, the incremented value of the character register Char has now reached "3", the CPU **11** proceeds to next step **8**A now that the data rewriting operation has been completed for all of the objects.

[0035] At step **8**A, the value of the player register Play is incremented by one, and it is determined at step **8**B whether the incremented value of the player register Play is "2". If the incremented value of the player register Play is still "1", the CPU **11** reverts to step **82** in order to read out the data from the second player's transponder and then repeat operations similar to the above-mentioned. Step **8**C, shown in **FIG. 8** as being taken when a negative determination is made at step **8**B, is performed where only one data read/write section **1**H or **1**J is provided in the game system. Step **8**C is directed to displaying on the monitor **1**E an instruction to the human operator that the combination (stack) of the transponders, currently set in the data read/write section **1**H or **1**J, should be replaced with another stack. By such an operation of step **8**C, it is possible to sequentially read out data associated with two or more players even where the game system includes only one data read/write section. Thus, in the case where two separate data read/write sections

1H and 1J are provided for two players as in the example of FIG. 1, the stack replacement instructing operation of step 8C may be omitted.

[0036] In the above-described embodiment, each of the transponders has a unique ID number and any same ID number can not be allocated to two or more transponders redundantly. However, a same ID number may be allocated redundantly to two or more transponders having same attributes, as long as these transponders are made distinguishable from each other by adding thereto unique sub ID numbers or additional attributes such as players' initials or by increasing the number of digits in the ID number. Thus, even these objects with the same ID can be varied in their attributes in accordance with the progression of the game (or values of various experiences gained during the playing of the game).

[0037] Further, whereas the preferred embodiment has been described in relation to a role-playing game, the present invention is applicable to any other games than the role-playing game, such as a car rally or car race game. In such a case, data of the car parts and the driver may be recorded on the card, and a set of different ID numbers may be used to identify each car and its driver.

[0038] Further, the present invention may use cards each having recorded thereon data of a player in sports such as tennis or soccer. In this case, a different ID number may be allocated to each player. For instance, if cards of 100 sports players are prepared, a stack may be created by 11 cards out of these 100 cards and a player list may be created using 11 ID numbers extracted by the game machine checking all of the 100 ID numbers.

[0039] Furthermore, whereas the preferred embodiment has been described in relation to the case where each transponder is a write-once memory card, the transponder may be implemented by a rewritable memory card so that the stored data can be replaced or updated with new data at the end of the game.

[0040] Moreover, whereas the preferred embodiment has been described in relation to the case where only the data stored on the transponder are rewritten or updated, the character design on the surface of the transponder may be varied in accordance with the updated data values. For example, the design on the transponder may itself be changed by making an adhesive seal having printed thereon a character design corresponding to the data values read out from the transponder and sticking the seal onto the transponder.

[0041] In summary, the present invention arranged in the above-described manner affords the superior benefit that it can rewrite the data recorded on a trading card variously in accordance with progression of a game.

What is claimed is:

1. An electronic game system comprising:

game control section that executes a game program on the basis of data relating to an object appearing in a game and a control signal given from a controller, to cause the game to progress and generate an image signal and a sound signal;

a display and sound generating section that visually displays the image signal and audibly reproduce the sound signal;

a trading-card-type electronic recording medium that stores thereon the data relating to the object caused to vary as the game progresses; and

a data read/write section that writes, onto said electronic recording medium, the data relating to the object stored in said game control section, or reads out, from said electronic recording medium, the data relating to the object.

2. An electronic game system as recited in claim 1 wherein a character image and/or design of the object appearing in the game are visibly provided on a surface of said electronic recording medium.

3. An electronic game system as recited in claim 2 which can vary a character characterizing an attribute of said electronic recording medium by sticking, onto a surface of said electronic recording medium, an adhesive seal that has the character image and/or design printed thereon.

4. An electronic game system as recited in claim 1 wherein a plurality of the objects can appear in the game program and an electronic recording medium with a different data content can be used for each of the objects, and wherein, at least upon start of the game, the data relating to one or more of the objects are read out, via said data read/write section, from one or more of the electronic recording media so that the read-out data are used in the game.

5. An electronic game system as recited in claim 1 wherein when the attribute of the object stored on said electronic recording medium is caused to vary during progression of the game, data representative of the varied attribute is written into said electronic recording medium via said data read/write section in the course of the game.

6. An electronic game system as recited in claim 1 wherein when the attribute of the object stored on said electronic recording medium is caused to vary during progression of the game, data representative of the varied attribute is written into said electronic recording medium via said data read/write section upon termination of the game.

7. A trading card for use with an electronic game device comprising:

a card surface bearing a character image and/or design of an object appearing in a game to be played on said electronic game device; and

an electronic storage section that is provided within said trading card and stores therein data relating to the object appearing in the game in such a manner that the data can be read and written via said electronic game device.

8. A machine-readable recording medium containing a group of instructions of a game-performing program to be executed by a processor, said game-performing program comprising:

a first step of reading out, from a trading-card-type electronic recording medium, data relating to an object appearing in a game and loading the read-out data into an internal register, a character image and/or design of the object being visibly provided on a surface of said electronic recording medium;

a second step of executing a given game program on the basis of said data relating to the object appearing in a game loaded by said first step, to thereby generate image and sound signals during the course of the game; and

a third step of writing, onto said electronic recording medium, said data relating to the object caused to vary in accordance with progression of the game.

9. A machine-readable recording medium as recited in claim 8 wherein said game-performing program further comprises a step of loading the given game program from an external memory into an internal memory and said second step executes the game program loaded in said internal memory.

10. A machine-readable recording medium as recited in claim 8 wherein a plurality of the objects can appear in said game program and a trading-card-type electronic recording medium with a different data content can be used for each of the objects, and wherein said first step reads out data relating to one or more of the objects from one or more of the electronic recording media.

* * * * *