A system controlling takings and prizes in gaming machines.

The system controlling takings and prizes in gaming machines subject of the invention, the purpose of which is at all times to have a count of the money gambled and the prizes awarded in gaming machines giving random prizes or the like, comprises the functional association of a control means (1), joined to an infrared light communication board (2), both linked to the gaming machine (3), and an adaptor board (4) linked to a data terminal (5), communication between boards (2) and (4) being provided to take place by means of infrared signals, both being to such end fitted with emitters and receivers.

The control means (1), comprising a micro-control (U1), a supervisor element (U2) and a communications element (U3) runs all information reading, storage and transmission operations, being moreover fitted with elements detecting program running faults and power cuts.
OBJECT OF THE INVENTION

The present invention relates, as stated in the heading of this specification, to a system controlling takings and prizes, the purpose of which is at all times to have a count of the money gambled and the prizes awarded in gaming machines giving random prizes or the like to avoid human or mechanical errors causing takings in such machines to be diverted.

BACKGROUND OF THE INVENTION

The systems existing nowadays for controlling money gambled and prizes delivered comprise terminals connected to the gaming machines with a cable, acquiring the data they have in order for a computer to subsequently process such information.

This kind of systems implies that there is a need to be variously connected to each of the existing kinds of machines, and also a possibility of erroneous data being inserted for the tests operators run in such machines are recorded as amounts gambled, causing a deflection of the data acquired from the gaming machine.

DESCRIPTION OF THE INVENTION

The system for controlling takings and prizes in gaming machines subject of the invention solves the problems that exist nowadays, introducing elements that allow remote infrared signal reading in any kind of prize machines fitted with basic electronic circuits, in which means are inserted for reading information on the game played which the machine produces, storing the information in memory and allowing data to be inserted or stored information to be retrieved, via a terminal outside the machine, both being fitted with an infrared signal emitter-receiver circuit capable of transforming the signals into electric signals.

In particular, the system comprises the functional association of a control means having three circuits: a supervisor and communications microcontrol; an infrared light communication board associated to the control means and an adaptor board associated to the data terminal.

Within the control means the microcontrol circuit is the core of the system since it runs all operations to count and store such information in an internal RAM type memory.

The supervisor circuit deals with verifying that the circuit is working properly and is to such end fitted with two different protection systems, a WATCH-DOG system that detects faults in the running of the program and a power cut circuit that warns the microcontrol in order to switch to a low consumption or POWER-DOWN operating mode when a power cut is detected, whereupon the microcontrol is supplied through a standby battery.

The communications circuit, designed pursuant to rule RS232, allows the control means to be connected to any peripheral fulfilling this rule.

Infrared light optical communication of the control means with a data terminal is achieved using two boards, the infrared light communication board connected to the control means, and the adaptor board, which allow PSION ORGANISER II data terminals to be communicated with the control means through the infrared light communication board.

This system is therefore new and convenient in that it can adapt to any of the machines existing in the market, whatever the manufacturer, and can read data scanned at certain points of such machines. Furthermore, no physical connection is required to read information for this is achieved by means of an infrared light transmission system.

DESCRIPTION OF THE DRAWINGS

In order to provide a fuller description and contribute to the complete understanding of the characteristics of this invention, a set of drawings is attached to the specification which, while purely illustrative and not fully comprehensive, shows the following:

Figure 1 is a block diagram of the system controlling takings and prizes in gaming machines subject of the invention.

Figure 2 is an electronic diagram of the control means.

In particular, the figure is a diagram of the control means with a data terminal connected to a peripheral fulfilling this rule.

Figure 3 is the silk screen printing of the printed circuit board of the control means.

Figure 4 is the component side of printed circuit on the control means board.

Figure 5 is the weld side of the printed circuit of the control means board.

Figure 6 is the electronic diagram of the infrared light communication board.

Figure 7 is the silk screen printing of the printed circuit board of the infrared light communication board.

Figure 8 is the weld side of the printed circuit of the infrared light communications board.

Figure 9 is the electronic diagram of the adaptor board for access to the information through a data terminal.

Figure 10 is the silk screen printing of the printed circuit board of the adaptor board.

Figure 11 is the weld side of the printed circuit of the adaptor board.

Figure 12 is a diagram of the interface between the control means and the various elements of the gaming machine, and the connections with other possible peripherals.

PREFERRED EMBODIMENT OF THE INVENTION

The figures show that the system controlling tak-
ings and prizes in gaming machines subject hereof comprises the functional association of a control means (1) and an infrared light communication board (2), on the one hand, both linked to the gaming machine (3), and an adaptor board (4) linked to the data terminal (5) on the other, communication between both sets being provided to take place by infrared signals.

The control means (1) upon which the system is based comprises a microcontrol (U1) that runs the counter operations and further acts as an information storage memory that will be supported by a battery (BT1) in the event of a power cut; a supervisor element (U2) that detects both faults in program running and power cuts, and a communications element (U3), designed to establish information transmission electrically towards the infrared light communication board (2).

The connector (CN1) has contacts through which the information in any machine to which it is connected is readable, in addition to the contacts designed to send information coming from the communication element (U3) to the infrared light communication board (2).

The unit formed by the control means (1) is supported by a printed circuit board that in addition to the said elements and associated electronic circuitry, has an element (Ux) used solely to position such board inside the gaming machine (3), in particular at one of the free sockets of the control board in the said machine.

The control means (1), being the essential portion of the control system, and as explained in the previous paragraph is fitted inside the gaming machine (3), houses the relevant information on merely reading the same at specific locations of the machine as such, whatever the machine.

The infrared light communication board (2) will also be housed within the gaming machine (3), joined to the control means (1) through conductors leaving from the connector (CN2) through which the control means (1) sends information from its memory by means of the communication element (U3).

The purpose of the infrared light communication board (2) is none other than to transform the information received electrically from the communication element (U3) into infrared signals, to send the same out, or to transform the infrared signals received into electric signals, being able to transmit the information without having to connect any cable between both elements, viz. optically. This circuit is therefore fitted with an emitter (LD1) and a receiver (IR1)-(U5) through which the information stored in the control means (1) is requested or transmitted. It is thereby possible to have access to the information without having to open the gaming machine (3), once it has been fitted with the above-described two circuits, of the three making up the system.

The adaptor board (4) essentially comprises an emitter (LD3) receiving the infrared light communication board (2) signals, an infrared receiver (IR2) receiving the signals from the same board and the elements required for connecting the same to any data reading terminal (5) in any gaming machine and transforming the optical signal into an electric signal. The output connecting this board to the data terminal (5) is located at the points marked (RX), (+SV), (LD4), (C10) and (GND) on the said adaptor board (4).

Figures 2 to 11 show all the itemised details of the system circuits and boards. Figure 12 shows connection on the one hand to the gaming machine (3) elements, in particular its CPU (6), which supports the inputs (7) through the electronic money box (8), outputs (9) and mechanical counters (10), and on the other connection to a central computer (11) through a modem (12) or an ORGANISER terminal (13) and a printer output (14).

The control means (1) houses the microcontrol (U1) RAM, the machine code, pesetas gambled and pesetas paid out as prizes in its memory.

The games played and prizes awarded are recorded by reading the machine CPU (6) generated signals, these same signals reaching the mechanical counters (10) fitted. The information thus obtained is recorded in pesetas within the RAM memory with which the microcontrol (U1) is fitted.

The control means (1) locks the electronic money box (8) in order not to allow coins in, in any of the following events: program running fault detected by the WATCH-DOG system, counter input cables sheared and internal control means (1) information corrupt.

The control means (1) has a test operating mode in order for technicians to be able to run as many operations as they shall see fit to repair the machine, without these affecting its internal counter.

A serial communications port allows the control means (1) to be connected to run a number of operations, namely inserting the machine code in which it is fitted, setting the game and prize counters, locking the counter in test status, switching the counter to record all games played and prizes awarded, looking up the status of the control means (1) to see whether it is in active or locked mode, looking up the status of the money box (8) allowing input of coins, reading the stored machine code, and reading the games and prizes counters, in order to determine the takings and the prize percentage of the machine.

Claims

1.- A system controlling takings and prizes in gaming machines, designed to establish at all times the count of money gambled and prizes awarded in gaming machines giving random prizes or the like, characterised by comprising the functional associa-
tion of a control means (1), joined to an infrared light communication board (2), both linked to the gaming machine (3), and an adaptor board (4) linked to a data terminal (5), communication between the infrared light communication board (2) and the adaptor board (4) being provided to take place by means of infrared signals.

2.- A system controlling takings and prizes in gaming machines, as in claim one, characterised in that the control means (1) is fitted with a microcontrol element (U1) that runs the counter operations and acts as an information storage memory that will be supported by a battery (BT1) in the event of a power cut, a supervisor element (U2) that detects both program running faults and power cuts, and a communications element (U3) designed to establish information transmission electrically towards the infrared light communication board (2).

3.- A system controlling takings and prizes in gaming machines, as in the above claims, characterised in that the control means is supported by a printed circuit board that is, in addition to the microcontrol elements (U1), supervisor element (U2), communications element (U3) and associated electronic circuitry, fitted with a connector (CN1) through which communication is established with the gaming machine (3) and with the board (2), an element (Ux) being provided to position the board within the machine.

4.- A system controlling takings and prizes in gaming machines, as in claim one, characterised in that the infrared light communication board (2) has emitter (LD1) and receiver (U5) elements which together with the emitter (LD3) and receiver (IR2) elements on the adaptor board (4) allow information to be optically transmitted between the gaming machine and the data terminal (5), both being provided to carry means for connection to the associated elements, respectively control means (1) and data terminal (5).
FIG. 3
FIG.-9
FIG.-12
**DOCUMENTS CONSIDERED TO BE RELEVANT**

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document with indication, where appropriate, of relevant passages</th>
<th>Relevant to claim</th>
<th>CLASSIFICATION OF THE APPLICATION (Int. Cl. 6)</th>
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<tr>
<td>P,X</td>
<td>EP - A - 0 555 565 (BALLY WULFF AUTOMATEN GMBH) * Claims 1,7 (esp. line 58), 9,12; fig. 4 *</td>
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<td>G 07 F 17/34</td>
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<td>A</td>
<td>DE - A - 4 112 188 (NSM AG) * Claims 1,2 (esp. line 26), 3,4 *</td>
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<td>A</td>
<td>EP - A - 0 024 184 (BELL FRUIT MANUFACTURING CO) * Claim 1; page 10, 2nd chapter; page 8, last paragraph; page 9, 1st paragraph; page 2, 3rd paragraph, line 5 *</td>
<td>3,4</td>
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**TECHNICAL FIELDS SEARCHED (Int. Cl. 6)**

G 07 F 17/00

The present search report has been drawn up for all claims.

**EXAMINER**

BISTRICH

**DATE OF COMPLETION OF THE SEARCH**

07-11-1994