PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 7 :		(11) International Publication Number:	WO 00/62866
A63B 24/00, A61B 5/00, G06F 19/00	A1	(43) International Publication Date:	26 October 2000 (26.10.00)

(21) International Application Number: PCT/IB00/00459

(22) International Filing Date: 13 April 2000 (13.04.00)

(30) Priority Data:
BO99A000180 16 April 1999 (16.04.99) IT

(71) Applicant: TECHNOGYM S.r.l. [IT/IT]; Via G. Perticari, 20, I–47035 Gambettola (IT).

(72) Inventor: ALESSANDRI, Nerio; Via Matteotti, 27, I–47020 Longiano (IT).

(74) Agent: LANZONI, Luciano; Bugnion S.p.A., Via Goito, 18, I–40126 Bologna (IT).

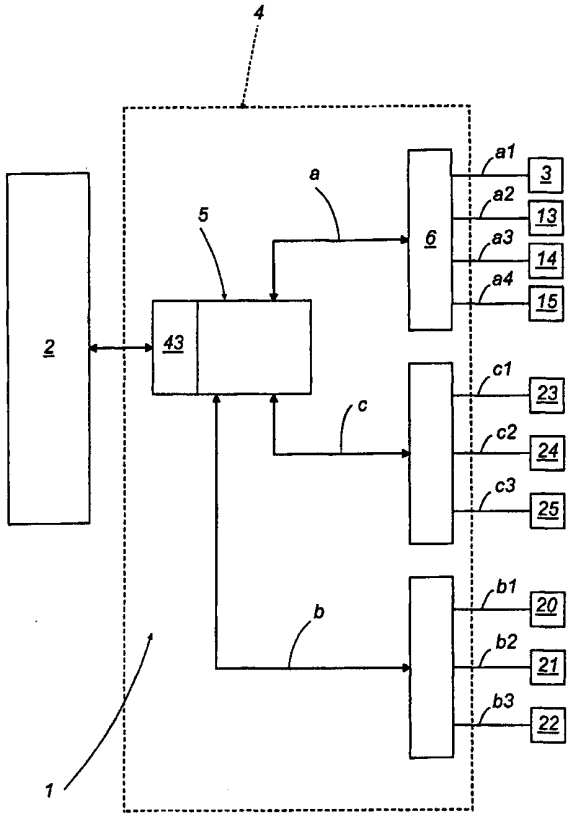
(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published
With international search report.

(54) Title: A TELECOMMUNICATION SYSTEM FOR EXCHANGING CONFIDENTIAL INFORMATION BETWEEN A PHYSICAL PERSON AND AN INFORMATION SYSTEM

(57) Abstract

A telecommunication system for exchanging confidential information between a physical person and an information system (2) comprises a telephone (6) intercommunicating with the information system (2), which is provided with means (14, 15) for identifying the person which carry out recognition operations based at least on a physical characteristic uniquely distinguishing the person.



FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	**ES**	Spain	**LS**	Lesotho	**SI**	Slovenia
AM	Armenia	**FI**	Finland	**LT**	Lithuania	**SK**	Slovakia
AT	Austria	**FR**	France	**LU**	Luxembourg	**SN**	Senegal
AU	Australia	**GA**	Gabon	**LV**	Latvia	**SZ**	Swaziland
AZ	Azerbaijan	**GB**	United Kingdom	**MC**	Monaco	**TD**	Chad
BA	Bosnia and Herzegovina	**GE**	Georgia	**MD**	Republic of Moldova	**TG**	Togo
BB	Barbados	**GH**	Ghana	**MG**	Madagascar	**TJ**	Tajikistan
BE	Belgium	**GN**	Guinea	**MK**	The former Yugoslav Republic of Macedonia	**TM**	Turkmenistan
BF	Burkina Faso	**GR**	Greece			**TR**	Turkey
BG	Bulgaria	**HU**	Hungary	**ML**	Mali	**TT**	Trinidad and Tobago
BJ	Benin	**IE**	Ireland	**MN**	Mongolia	**UA**	Ukraine
BR	Brazil	**IL**	Israel	**MR**	Mauritania	**UG**	Uganda
BY	Belarus	**IS**	Iceland	**MW**	Malawi	**US**	United States of America
CA	Canada	**IT**	Italy	**MX**	Mexico	**UZ**	Uzbekistan
CF	Central African Republic	**JP**	Japan	**NE**	Niger	**VN**	Viet Nam
CG	Congo	**KE**	Kenya	**NL**	Netherlands	**YU**	Yugoslavia
CH	Switzerland	**KG**	Kyrgyzstan	**NO**	Norway	**ZW**	Zimbabwe
CI	Côte d'Ivoire	**KP**	Democratic People's Republic of Korea	**NZ**	New Zealand		
CM	Cameroon			**PL**	Poland		
CN	China	**KR**	Republic of Korea	**PT**	Portugal		
CU	Cuba	**KZ**	Kazakstan	**RO**	Romania		
CZ	Czech Republic	**LC**	Saint Lucia	**RU**	Russian Federation		
DE	Germany	**LI**	Liechtenstein	**SD**	Sudan		
DK	Denmark	**LK**	Sri Lanka	**SE**	Sweden		
EE	Estonia	**LR**	Liberia	**SG**	Singapore		

Description

A Telecommunication System for Exchanging Confidential Information between a Physical Person and an Information System

Technical Field

The present invention relates to the technical field of information systems in general which allow an exchange of information between a user and a data base or a network; in particular this system can be correlated to the fitness or wellness sector and integrated with exercise machines for training, re-educating and maintaining the well-being of the body.

Background Art

Exercise machines of more modern and advanced conception, both professional and amateur-oriented, are designed in such a way as to allow the user to plan his/her physical activities in relation with his/her own personal characteristics and requirements.

For this purpose machines are known which, although conceived for a general employment able to meet the diversified demands of a plurality of users, can then be pre-set on each occasion as a function of each individual user and of the workout plan the user actually intends to follow. A personalised management system for this type of machined is, for instance, already known from the patent IT-1.274.053 in the name of the same Applicant.

Disclosure of Invention

The present invention more particularly relates to a telecommunication system which extends beyond the physical borders of a gym or of a physical education venue in general, and has the fundamental aim of allowing a further advancement of the individual management of physical activities and a more advanced and accurate

personalisation so as to take into consideration the person's actual physiological conditions, enabling to take into account also a series of other parameters such as those concerning his/her nutrition and those concerning the energy consumption linked with that person's actual daily lifestyle.

According to the invention this aim is achieved by a telecommunication system for exchanging confidential information, for instance concerning physiological state parameters, between a physical person and an information system, characterised in that it comprises a telephone intercommunicating with the information system and provided with means for identifying the person operating by recognition of at least a physical characteristic uniquely distinguishing the person, embodied for instance by a fingerprint reader or by a retinal image reader.

The invention enables a dialogue with the information system which allows numerous advantages. The user has the capability of entering personal and specific information pertaining to some significant physiological parameters, whose processing can allow the user to receive in return equally focused and specific information, such as some parameters relating to the scientifically managed quantification and graduation of his/her own personal workout plans to be carried out on the exercise machines, based on the information entered; all, obviously, under the conditions of utmost and certain personalisation and utmost confidentiality allowed by the identifying means.

The telephone with which the system is provided can further allow the insertion into the information system of data pertaining for instance to the energy content stored with daily nutrition or referable to a different time interval; and/or information wherefrom the portion of energy content dissipated by the user through his/her work activity during the same time interval can be deduced. All this to allow to manage the user's physical activity on the exercise machine in a personalised, rational manner as a function of a realistic energy budget. Similarly with regard to the management of diets, nutrition, linked to the aforesaid physical activities or otherwise.

The telephone can allow the user to connect also to the information system both locally and remotely. It can be connected to the information system by means of a

fixed physical network; or, if the telephone is constituted by a radiotelephone, irrespective of its constructive technology, it can allow the wireless exchange of information between the user and the information system. In either case the exchange of information is easy, immediate and possible on a global and planetary scale.

Providing the telephone with appropriate interface means, such as a board with miniaturised circuitry, in addition to the acquisition of information from the information system it is also possible to store signals which can allow to query the data base or the network or to configure in a personalised and automated manner the exercise machines of the gym normally attended by the user or any other gym he/she may desire to access, for instance when staying in a location more or less distant from his/her habitual residence.

Naturally, the aforesaid personalisation of the configuration of the machines is not limited to exercise machines, but can be extended also to electrical appliances or to machines finding more general employment whose functionalities allow, for instance, to interact in the broadest sense of the term with the physical well-being of the user and/or with his/her energy exchanges with the surrounding environment.

If the system according to the invention is provided with suitable communication software constituted for instance by a standard operating system such as Windows CE, the telecommunication system according to the invention can advantageously interconnect with local area networks such as intranets or with the global network, the Internet, and dialogue with data bases, with processing centres or intelligent software systems able to manage incoming and output information about person's physical condition, physical activities and/or medical and scientific information connectable thereto.

Description of the Drawings

The technical features of the invention, according to the aforesaid aims, can clearly be noted from the content of the claims set out below and its advantages shall become more readily apparent in the detailed description that follows, made with

reference to the accompanying drawings, which represent an embodiment provided purely by way of non-limiting example, in which:

- Figure 1 is a schematic block function representation of the telecommunication system according to the invention; and
- Figure 2 is a detailed block function representation of a variation in the execution of the system of Figure 1.

Description of the Illustrative Embodiment

With reference to the accompanying drawings, the number 1 indicates in its entirety a telecommunication system for exchanging information concerning personal physiological state parameters between a physical person and an information system 2.

The system 1 essentially comprises measuring means 3, such as a cardiac frequency meter, for measuring directly from the physical person physiological parameters significant for monitoring his/her physical condition; and processing means 4 which include a software for processing and handling information pertaining to physiological condition parameters of the person and which are interconnected with the measuring means 3 and with the information system 2, to transmit to the information system 2 this information in the form of input signals a1 and to transmit to the physical person output information b, c corresponding with that received in return from the information system 2.

The processing means 4 [Figure 1] comprise a microprocessor device 5, first interface means 7, 8, 9, 10 and a terminal 6, preferably of the telephonic type which incorporates the microprocessor device 5 and the first interface means 7, 8, 9, 10. The microprocessor device 5 is provided with a central processing unit CPU; with means 40, 41, 42 for storing data, programs and information for external peripheral units, and with a signal modulation and demodulation unit - modem 43.

The terminal 6, as stated, is preferably telephonic, of the portable, palmtop type and it is integrated in a single body with the microprocessor device 5. Moreover,

according to an alternative embodiment, shown in Figure 2, it comprises a radiotelephone which allows the person to be connected with the information system 2 according to a wireless mode.

The interface means 7, 8, 9, 10 are interconnected with the measuring means 3 and can be interconnected with an input device 13 and with means 15, 16 for identifying the person. The input device 13 can be embodied by a keyboard or by the keypad of the telephone 6, or by a barcode reader with which the telephone 6 can be equipped. The means 15, 16 for identifying the person can be embodied by a fingerprint reader and/or also by a retinal image reader.

The first interface means 7, 8, 9, 10 in combination with the microprocessor device 5 allow to enter into the information system 2, and through the first interface means 7, 8, 9, 10 and the microprocessor device 5, information that is understandable for the operating system by suitably converting the signals 1a of the measuring means 3 and the information a2, a3, a4 entered by the person by means of the input device 13 and/or through identification means 15, 16.

Clearly, the information that can be entered into the information system 2 can be the most disparate, as it is easy to understand that through the keyboard 13 the physical person can enter the most widely varied information establishing, through the software that equips the processing means 4, a veritable dialogue with the information system 2. The insertion of information through the bar code reader can allow to send to the information system 2, in a rapid and complete manner, information for instance on the nature, quality and quantity of food products consumed by the user with his/her daily nutrition; information which can then be processed by the information system 2 for a whole series of diet and energy information which can be both aimed at informing the physical person or at being exploited to quantify and modulate the workload needed by the physical person to work them off.

For the communication to the physical person of the data b1, b2, b3 processed by the information system 2, the processing means 4 can be provided with an output device 20, 21, 22 interconnected with related second interface means 29, 30, 31. The

output device can present the most disparate embodiments and can be embodied for instance by a video 20, by a display 21, by a printer 22 and can lastly be integrated in the same processing means 4 and, more in particular in the portable terminal 6 or even in the radiotelephone itself which can integrate in a single body also the second interface means 29, 30, 31 themselves.

The processing means 4 also comprise third interface means 35, 36, 37 connected with an output device 23, 24 which receives from the information system 2 information in the form of appropriately processed signals c1, c2, c3. The third interface means 35, 36, 37 can be integrated in the same portable telephone 6 or even in the radiotelephone. The output device connected thereto can assume a broad range of concrete embodiments, represented by way of non limiting example by a board 23 with miniaturised circuitry able to store said signals c1, c2, c3; or by a directly connected machine 24, 25 whose functionalities can be modulated according to the person's physiological parameters.

The board 23 can be of the kind employed by the system for managing the personalisation of exercise machines already subjected to patent protection by the same Applicant, and can allow the physical person to store through the communication system 1 the signals which will be necessary for configuring the exercise machines when the physical person accesses his/her own gym.

Naturally, through portable processing means 4, integrated in a related radiotelephone 6, it is possible to connect to the operating system 2 the exercise machine 24 of one's own gym or in general any other electrical appliance 25 able to interact energetically with the person and to download in real time from the operating system 2 the configuration parameters necessary for personalising the machine 24, 25.

As to the information system 2, from the above description one can observe that it can include a computerised data base and/or even the software for processing the physical person's own personal data as well as data contained in the data base. Moreover, the information system 2 can reside within a local computer or otherwise can be contained in a remote server reachable by telephone 6 through an information

network 28 which can be local, remote, fixed or wireless like those currently employed for mobile telephony. Interactivity with the network 28 shall be enabled by providing the processing means 4, included in the telephone 6, with suitable software, for instance of the Windows CE type, which is found to be particularly well suited to equip portable, palmtop processing means 4.

The invention thus conceived can be subject to numerous modifications and variations, without thereby departing from the scope of the inventive concept. Moreover, all components can be replaced by technically equivalent elements.

Claims

1. A telecommunication system for exchanging confidential information between a physical person and an information system (2), characterised in that it comprises a telephone (6) intercommunicating with the information system (2) and provided with means (14, 15) for identifying at least a physical characteristic uniquely distinguishing the person.

2. A system as claimed in claim 1, characterised in that the telephone (6) is connected to the information system (2) by means of a fixed telecommunications network (28).

3. A system as claimed in claim 1, characterised in that the telephone (6) is connected to the information system (2) by means of a wireless telecommunications network (28).

4. A system as claimed in one of the previous claims from 1 to 3, characterised in that the telephone (6) is mobile.

5. A system as claimed in one of the previous claims from 1 to 4, characterised in that the personal identification means include a reader (14) of the person's fingerprint.

6. A system as claimed in one of the previous claims from 1 to 4, characterised in that the personal identification means include a reader (15) of the person's retinal image.

7. A system as claimed in one of the previous claims, characterised in that it comprises measuring means (3) for measuring physiological parameters of the physical

person; and in that the telephone (6) includes processing means (4) interconnected with the measuring means (3) and with the information system (2), to transmit to the information system (2) at least input signals (a1) corresponding to the physiological parameters acquired from the persona and to transmit to the physical person output information (b; c) corresponding to that received in return from the information system (2).

8. A system as claimed in claim 7, characterised in that the measuring means (3) comprise a cardiac frequency meter for monitoring the person's physical condition.

9. A system as claimed in claim 7, characterised in that the processing means (4) comprise a microprocessor device (5), and in that the telephone (6) is provided with at least first interface means (7, 8, 9, 10), which are interconnected to each other and with the measuring means (3) to send to the information system (2) at least information in the form of input signals (a1) coming from the user.

10. A system as claimed in claim 7, characterised in that the telephone (6) comprises a data input device (13) connected to the interface means (7, 8, 9, 10), through which the person sends information in the form of data (a2) to the processing means (4).

11. A system as claimed in claim 10, characterised in that the input device (13) is embodied by the keypad of the telephone (6).

12. A system as claimed in claim 10, characterised in that the input device (13) includes a barcode reader.

13. A system as claimed in one of the claims from 9 to 12, characterised in that the personal identification means (14, 15) are functionally interconnected to the first

interface means (7, 8, 9, 10) to subordinate the transmission to the information system (2) of input information (a3, a4) to the person's recognition.

14. A system as claimed in claim 1, characterised in that the telephone (6) comprises second interface means (29, 30, 31) for connecting at least with a data output device (20, 21, 22) provided for transmitting to the person information in the form of data (b1, b2, b3) coming from the information system (2).

15. A system as claimed in claim 14, characterised in that the output device is a video (20).

16. A system as claimed in claim 14, characterised in that the output device is a display (21).

17. A system as claimed in claim 14, characterised in that the output device is a printer (22).

18. A system as claimed in claims 14 through 17, characterised in that the output device (20) is integrated with the telephone (4) itself.

19. A system as claimed in claim 1, characterised in that the telephone (6) comprises at least third interface means (35, 36, 37) for connecting to a device (23, 24) which handles output information, in the form of signals (c1, c2, c3), corresponding to the information (c) coming from the information system (2).

20. A system as claimed in claim 19, characterised in that the output device comprises a board (23) with miniaturised circuitry able at least to store said signals (c1, c2, c3).

21. A system as claimed in claim 19, characterised in that the output device is a machine (24, 25) having functionalities which can be modulated as a function of the person's physiological parameters.

22. A system as claimed in claim 21, characterised in that said machine is an exercise machine (24).

23. A system as claimed in claim 19, characterised in that the machine is an electrical appliance (25) interacting with the physical person.

24. A system as claimed in any of the previous claims, characterised in that the information system (2) includes a computerised data base.

25. A system as claimed in claim 24, characterised in that the information system (2) is locally connected with the user.

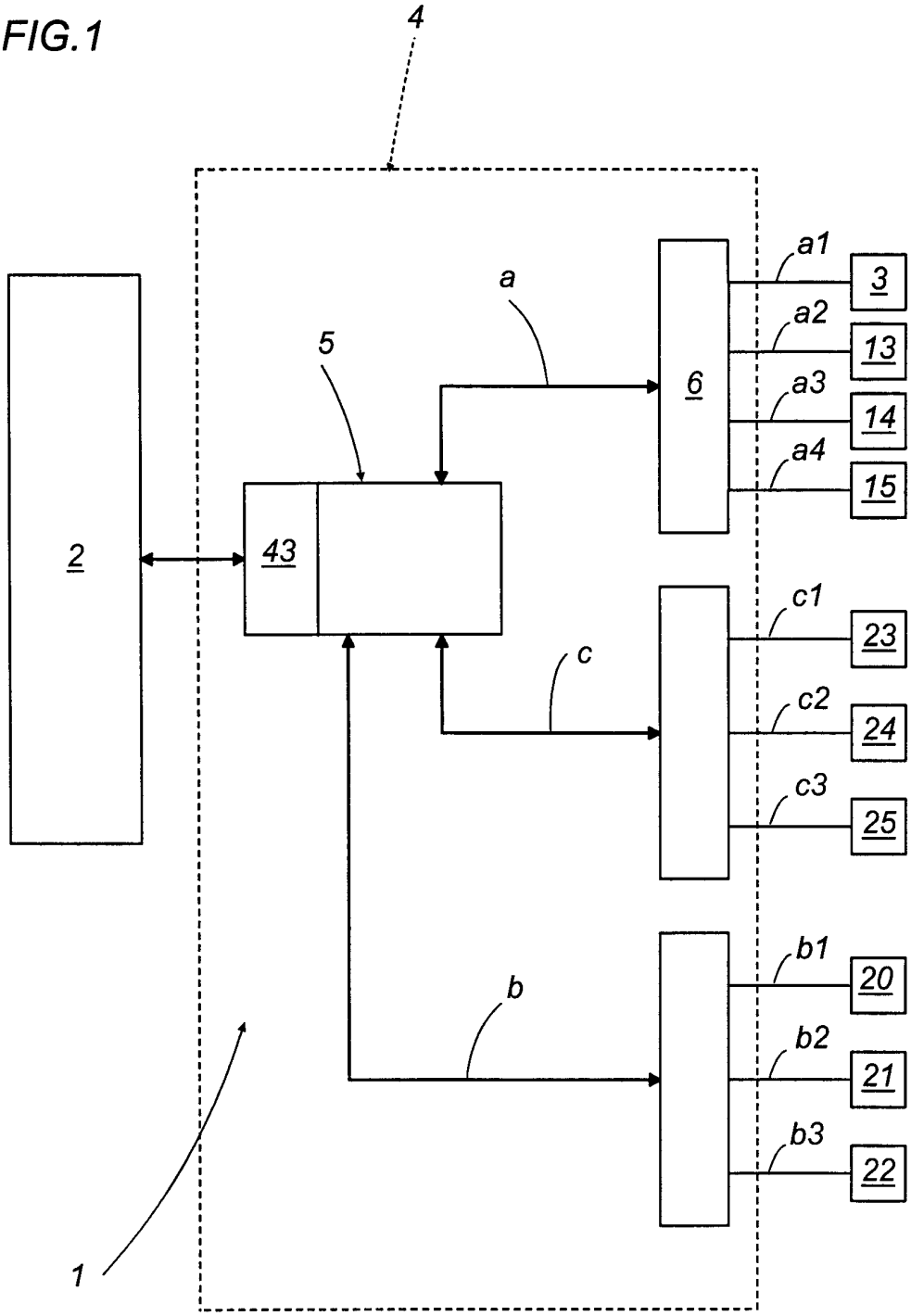
26. A system as claimed in claim 25, characterised in that the information system (2) is remote from the user with whom it is connected by means of a telecommunications network (28).

27. A system as claimed in claim 25, characterised in that the processing means (4) include a software for interactivity with the telecommunications network (28).

28. A system as claimed in claim 27, characterised in that the software for interactivity with the network is Windows CE.

29. A system as claimed in any of the previous claims, characterised in that the processing means (4) include a software for processing and managing information pertaining to the person's physiological state parameters.

FIG.1



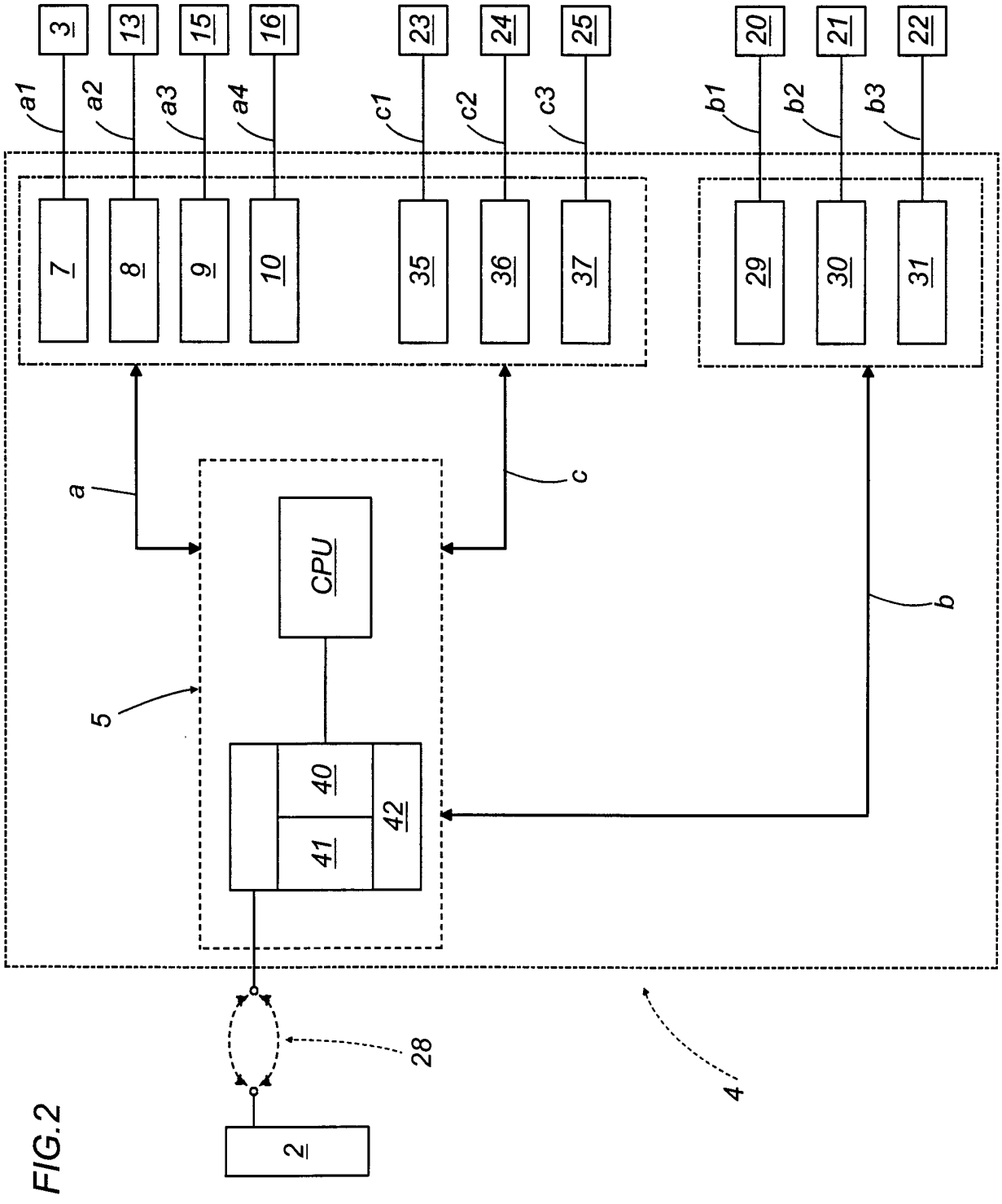

3
13
15
16
23
24
25
20
21
22
a1
a2
a3
a4
c1
c2
c3
b1
b2
b3
7
8
9
10
35
36
37
29
30
31
a
c
b
CPU
5
40
41
42
28
2
4

FIG.2

INTERNATIONAL SEARCH REPORT

Intern. ..onal Application No
PCT/IB 00/00459

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A63B24/00 A61B5/00 G06F19/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 A63B A61B G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 546 943 A (GOULD) 20 August 1996 (1996-08-20) column 3, line 28 -column 7, line 37	1,2,6, 14-17, 24-27,29
A	WO 97 11753 A (HEIDECKE) 3 April 1997 (1997-04-03) page 11, line 15 -page 16, line 17	1,2, 7-10, 14-17, 20-27,29
A	EP 0 710 465 A (HEWLETT PACKARD) 8 May 1996 (1996-05-08) column 4, line 8 -column 16, line 37	1-4, 7-10, 13-17, 19,20, 24-27,29

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
11 July 2000	18/07/2000

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Lemercier, D

1

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/IB 00/00459

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5546943 A	20-08-1996	NONE	
WO 9711753 A	03-04-1997	AU 4894296 A	17-04-1997
EP 710465 A	08-05-1996	US 5579775 A	03-12-1996
		JP 8214379 A	20-08-1996