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[Continued on next page]

(54) Title: RESPONSE SPEED DETECTION DEVICE

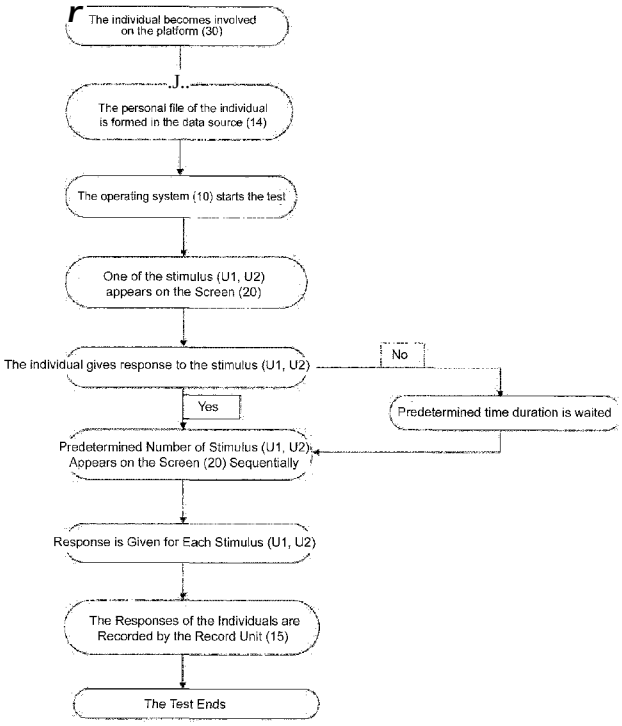

Figure 2

(57) Abstract: Device which measures the response durations of individuals which is the time duration between the instant the individual faces the stimulus and the instant the individual gives response to the stimulus in the area of psychomotor and cognitive processes.

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RESPONSE SPEED DETECTION DEVICE

The present invention relates to a device which measures the response durations of individuals after they are faced with the stimulus in the area of the measurement and evaluation of psychomotor and cognitive processes, shortly in psycho-technical evaluation area.

PRIOR ART

Industrial and Organizational Psychology is a psychology science which was applied in the industrial plants in the past and which is applied today in pluralities of foundations. When Industrial and Organizational Psychology is examined, it is observed that Industrial and Organizational Psychology has two basic structures. The first of these structures is the harmonization of the individual to the work and the other is the harmonization of the work to the individual. The harmonization of the individual to the work comprises the steps of personnel selection, personnel training and the professional help; on the other hand, the harmonization of the work to the individual comprises the processes of task design, the arrangement of the tools according to the individual, and shaping the working conditions according to the physical and psychological structure of the individual.

In the area of Industrial and Organizational Psychology, pluralities of measurement and evaluation tools are used for the selection of the suitable personnel. Psycho-technical evaluation can be defined as the measurement of the physical, psychomotor and cognitive abilities and the personal characteristics of an individual by means of pluralities of tests which are linguistic or non-linguistic. In the area of Industrial and Organizational Psychology, in personnel selection, in other words, in the selection of the suitable applicant to the suitable position, psycho-technical evaluation is used. The physical power (like the muscle power, body power), psychomotor (like coordination ability, response speed) and cognitive abilities (like judgment, visual and auditory attention and speed distance forecast) and the personal abilities (like willingness to take risks, anxiety level) are measured and the best applicant is selected in terms of the abilities which the task requires.

Pluralities of studies are realized for measuring psychomotor abilities and there are some patent applications about the test devices related to this subject. In the patent application US51 03408, the individuals are requested to realize comparison between the images appearing on the screen and the individuals are requested to give the suitable answer. In

another patent application US2010167246, the individuals are requested to visually follow the stimulus on the screen and the individuals are requested to determine the speed of the stimulus on the screen.

There is no test device which measures the response duration which is the time duration between the instant the individual faces the stimulus and the instant the individual gives response to the stimulus. The measurement of said response duration is important for the evaluation of the response speed of the individuals against the stimulus. The concentration of the individual and the correct response of the individual will decrease work accidents and at the same time, these will provide the individual to complete the work in a more rapid manner and with less error.

As a result, in the related technical field, an improvement is required which measures the response duration of individuals.

BRIEF DESCRIPTION OF THE INVENTION

The present invention is a psycho-technical test device, in order to eliminate the abovementioned drawbacks and in order to bring new advantages to the related technical field.

The main object of the present invention is to measure the response duration which is the time duration between the instant the individual faces the stimulus and the instant the individual gives response to the stimulus.

Another object of the present invention is to determine if the individual is suitable for the job or to lead the individual to a suitable position, as a result of the response duration of the individual.

In order to realize all of the abovementioned objects and the objects which are to be obtained from the detailed description below, the present invention relates to a device which measures the response duration of individuals which is the time duration between the instant the individual faces the stimulus and the instant the individual gives response to the stimulus in the area of psychomotor and cognitive processes. In order to realize this object, the device comprises the following members:

a. An operating system,

b. At least one input unit with a key pad thereon, in order to provide the data entry to the operating system,

c. One image source which is related to the operating system and which comprises a first stimulus and a second stimulus which are different from each other,

d. At least one data source which is related to the operating system, which comprises the data therein which is entered by means of the input unit and which comprises the test data to be applied,

e. At least one record unit which is related to the operating system and which keeps the answers given by the individuals during the test,

f. At least one screen which is related to the operating system and which displays said visual stimulus,

g. At least one right selection tool and at least one left selection tool which are related to the operating system, in order to determine the response of the individuals to the stimulus during the test,

h. At least one timer which is related to the operating system and which measures the displaying times of at least the first and the second visual stimulus, which measures the passage time between the visual stimulus, and which measures the time duration passed until the individuals give response to the visual stimulus using the selection tools,

i. A processor unit which is related to the operating system, which provides said stimulus to be displayed on the screen at a predetermined arrangement, and which functions together with said timer and which provides the response duration (the time duration between the instant the individuals face the visual stimulus and the instant the individuals realize selection using the selection tools) or the no response of the individuals to be recorded to the record unit.

In another preferred embodiment of the subject matter invention, there is at least one compiling unit which is related to the operating system and which classifies the data recorded by the record unit.

In another preferred embodiment of the subject matter invention, there is an analysis unit which is related to the operating system and which provides the comparison of the files recorded by the record unit.

In another preferred embodiment of the subject matter invention, said operating system is a computer.

In another preferred embodiment of the subject matter invention, said input unit is a keyboard.

In another preferred embodiment of the subject matter invention, said right selection tool and left selection tool are joysticks.

In another preferred embodiment of the subject matter invention, said image source, data source and record unit are hard disks.

In another preferred embodiment of the subject matter invention, according to the predetermined arrangement in said item (i), the first stimulus appears on the screen at a certain point, afterwards, said first stimulus is kept on the screen for a predetermined time duration; afterwards, the second stimulus appears at another point on the screen and these steps are repeated at a predetermined number.

In another preferred embodiment of the subject matter invention, there is a platform whereon all of the abovementioned members are placed at a predetermined arrangement and on which the individuals to whom the test is applied are standing.

In another preferred embodiment of the subject matter invention, the difference between the first stimulus and the second stimulus is the color difference.

In another preferred embodiment of the subject matter invention, the first stimulus existing inside the image source is in the form of green circle.

In another preferred embodiment of the subject matter invention, the second stimulus existing inside the image source is in the form of red circle.

In another preferred embodiment of the subject matter invention, there is a touch-screen in order to be able to select the responses of the individuals against the stimulus.

A test method which is designed for measuring the response duration of the individuals against the stimulus, characterized by comprising the steps of:

a. Recording of the individual to the operating system,
b. Starting the test from the data source in the direction of the predetermined timings in relation to the processor unit timer,

c. The operating system displays the first stimulus on the screen,
d. The first stimulus waits on the screen in order for the individual to give response,
e. The response duration of the individual or the no response of the individual is recorded by the record unit,
f. The operating system displays the second stimulus on the screen,
g. The second stimulus waits on the screen in order for the individual to give response,
h. The response duration of the individual or the no response of the individual is recorded by the record unit,
i. Predetermined number of stimulus appears on the screen sequentially,
j. The response durations of the individual or the no response of the individual against all stimulus is/are recorded by the record unit,
k. The test ends.

In order for the embodiment and the advantages of the subject matter invention to be understood in the best manner with the additional elements, it has to be evaluated with the figures explained below.

BRIEF DESCRIPTION OF THE FIGURES

In Figure 1, the schematic view of the device is given.

In Figure 2, the flow schema of the response speed test is given.

In Figure 3, the position of the first stimulus on the screen is given.

In Figure 4, the position of the first stimulus on the screen is given.

In Figure 5, the position of the second stimulus on the screen is given.

REFERENCE NUMBERS

10 Operating System
11 Processor Unit
12 Input Unit
13 Image Source
14 Data Source
15 Record Unit

16 Compiling Unit

17 Analysis Unit

18 Timer

20 Screen

30 Platform

31 Right Selection Tool

32 Left Selection Tool

U1 First stimulus

U2 Second stimulus

THE DETAILED DESCRIPTION OF THE INVENTION

In this detailed description, the subject matter system is explained with references to examples without forming any restrictive effect in order to make the subject more understandable. Accordingly, in the detailed description and in the figures below, the subject matter invention relates to a test device which is designed for measuring the time duration between the instant the individual faces the stimulus and the instant the individual gives response to the stimulus.

In Figure 1, the schematic view of the subject matter device is given. The device essentially comprises an operating system (10); a screen (20) which visually illustrates the data related to the operating system (10); and a platform (30) where the individual is subject to test.

The operating system (10) has a structure similar to a computer frame, it has housings or slots (not illustrated in the figure) to which the other members can be connected. Moreover, around the slots for protecting said members, there are structures similar to protective plate (not illustrated in the figure). There is an input unit (12) which is related to the operating system (10) and whereon the key pad is placed. There is an image source (13), a data source (14), a record unit (15), a compiling unit (16), an analysis unit (17) and a timer (18), related to said slots inside the operating system (10). Moreover, there is a processor unit (11) which is positioned inside the operating system (10).

There is a right selection tool (31) and a left selection tool (32) in the form of square or in the form of a joystick which the individuals can grab and which are preferably suitable to the ergonomics of the hands of the individuals.

The operation of the members existing inside the operating system (10) is as follows. By means of the keys on said input unit (12), data input can be realized to the operating system (10). Said data can be the personal data of the individuals who are subject to test, they provide the realization of all of the data input like the connections and relations between the members related to the test. The data whose input is realized is kept and stored in the data source (14). The stored data can be viewed again and they can be used again and when required, changes can be realized thereon. The image source (13) embodies the data which is to be used visually. The data existing inside the data source (14) and the visual data existing inside the image source (13) are related and the relations between the data are provided. The record unit (15) records the personal information of the individuals subject to the test and it records the answers of the individuals during the test. Thanks to this, the record unit (15) keeps the information of the numerical data like how many situations an individual faces in the personal data file during test, how the individual responses to the situation he/she faces, how long the response which the individual gives takes. The compiling unit (16) provides the classification of the information which said record unit (15) records when there is more than one individual. When the information of the individuals who are tested in this manner is desired to be accessed, the access is facilitated in the frame of a certain classification. The analysis unit (17) provides the comparison of the test results of more than one individual. The analysis unit (17) numerically analyses the test results of the selected people when the test results recorded by the record unit (15) is desired to be compared, and the analysis unit (17) provides the advantages and disadvantages between the individuals to be taken into consideration. The analysis unit (17) provides the sequencing of the results in addition to the comparison process. The processor unit (11) has the task of matching the data buses between the members. The timer (18) has the task of measuring the durations predetermined for the test; measuring the passage duration between the cases; and measuring the time difference between the time when the individuals face the stimulus and the time when they give response to the stimulus. The timer (18) functions together with the processor unit (11).

On the screen (20), the data coming from the operating system (10) is transformed into visual form. Inside the image source (13), there are essentially two visual members. The first of these members is the green circle and the second one is the red circle. Afterwards, the green circle will be called the first stimulus (U1) and the red circle will be called the second stimulus (U2). The selections of the individual realized using the right selection tool (31) and the left selection tool (32) existing on the platform (30) are sent to the operating system (10) and they are processed by the record unit (15).

The operation of the test device is as follows. The personal information of the individual to be tested is recorded to the record unit (15) with the help of the input unit (12). The individual on the platform (30) takes the right selection tool (31) to his/her right hand and he/she takes the left selection tool (32) to his/her left hand. The processor unit (11) takes the predetermined test conditions from the data source (14) and the processor unit (11) matches them with the related stimulus on the image source (13). After the stimulus related to the condition is determined, the visual stimulus appears on the screen (20). The individual, who sees any one of the stimulus on the screen (20), realizes the selection thereof.

The right choice/selection is realized in the following manner; If the first stimulus (U1) appears on the right of the screen (20), the button on the right selection tool (31) is pressed; and if the first stimulus (U1) appears on the left of the screen (20), the button on the left selection tool (32) is pressed. When the second stimulus (U2) appears on the screen (20), no button is pressed and thereby the correct selection is realized.

After the individual realizes the selection thereof, the selection and the selection duration are recorded to the data source (15) in the operating system (10). If the individual does not give any response to the first stimulus (U1) within 2 seconds during the test, the test automatically brings the next stimulus on the screen. During the sequencing of the stimulus appearing on the screen (20), the second stimulus (U2) never appears before the first stimulus (U1). During the test, the first stimulus (U1) or the second stimulus (U2) may appear on the screen (20) sequentially. After the individual completes the test, the compiling unit (16) provides the required classification together with the test results coming from the record unit (15). When the test results of the other individuals are also determined, the compiling unit (16) forms a library. The analysis unit (17) provides the comparison of some selected individuals according to the answers given.

In the alternative embodiment of the subject matter invention, on the screen (20), instead of the first stimulus (U1) and the second stimulus (U2) in the form of green and red circles, stimulus with different shapes and colors can be used. The number of stimulus (U1, U2) can be changed. The requested response type to the stimulus (U1 , U2), whose number is increased, may be changed. Instead of the joystick which is used as the right selection tool (31) and as the left selection tool (32) existing on the platform (30), a selection tool like a keyboard can be used, which has buttons thereon and which can be grabbed by the individual's both hands simultaneously and in an ergonomic manner. In the same manner, when the individuals face the stimulus (U1, U2), in order to mention the selections of the individuals for the stimulus (U1, U2), the screen (20) can be selected to be touch-screen. As

an additional embodiment to these, by means of a movement sensing sensor which can be added to the operating system (10) later, the individuals can be requested to give response to the stimulus (U1 , U2) by means of physical movements.

The protection scope of the present invention is set forth in the annexed Claims and cannot be restricted to the illustrative disclosures given above, under the detailed description. It is because a person skilled in the relevant art can obviously produce similar embodiments under the light of the foregoing disclosures, without departing from the main principles of the present invention.

CLAIMS

1. A device which measures the response duration of individuals which is the time duration between the instant the individual faces the stimulus and the instant the individual gives response to the stimulus in the area of psychomotor and cognitive processes, said device is characterized by comprising:

a. An operating system (10),

b. At least one input unit (12) with a key pad thereon, in order to provide the data entry to the operating system (10),

c. One image source (13) which is related to the operating system (10) and which comprises a first stimulus (U1) and a second stimulus (U2) which are different from each other,

d. At least one data source (14) which is related to the operating system (10), which comprises the data therein which is entered by means of the input unit (12) and which comprises the test data to be applied,

e. At least one record unit (15) which is related to the operating system (10) and which keeps the answers given by the individuals during the test,

f. At least one screen (20) which is related to the operating system (10) and which displays said visual stimulus,

g. At least one right selection tool (31) and at least one left selection tool (32) which are related to the operating system (10), in order to determine the response of the individuals to the stimulus during the test,

h. At least one timer (18) which is related to the operating system (10) and which measures the displaying times of at least the first and the second visual stimulus (U1 , U2) on the screen (20), which measures the passage time between the visual stimulus (U1, U2), and which measures the time duration passed until the individuals give response to the visual stimulus using the selection tools (31 , 32),

i. A processor unit (11) which is related to the operating system (10), which provides said stimulus (U1, U2) to be displayed on the screen (20) at a predetermined arrangement, and which functions together with said timer (18) and which provides the response duration (the time duration between the instant the individuals face the visual stimulus (U1, U2) and the instant the individuals realize selection using the selection tools (31 , 32)) or the no response of the individuals to be recorded to the record unit (15).

2. A test device according to Claim 1, characterized in that there is at least one compiling unit (16) which is related to the operating system (10) and which classifies the data recorded by the record unit (15).

3. A test device according to Claim 1, characterized in that there is an analysis unit (17) which is related to the operating system (10) and which provides the comparison of the files recorded by the record unit (15).

4. A test device according to Claim 1, characterized in that said operating system (10) is a computer.

5. A test device according to Claim 1, characterized in that said input unit (12) is a keyboard.

6. A test device according to Claim 1, characterized in that said right selection tool (31) and left selection tool (32) are joysticks.

7. A test device according to Claim 1, characterized in that said image source (13), data source (14) and record unit (15) are hard disks.

8. A test device according to Claim 1, characterized in that according to the predetermined arrangement in said item (i), the first stimulus (U1) appears on the screen (20) at a certain point, afterwards, said first stimulus (U1) is kept on the screen for a predetermined time duration; and afterwards, the second stimulus (U2) appears at another point on the screen (20) and these steps are repeated at a predetermined number.

9. A test device according to Claim 1, characterized in that there is a platform (30) whereon all of the abovementioned members are placed at a predetermined arrangement and on which the individuals to whom the test is applied are standing.

10. A test device according to Claim 1, characterized in that the difference between the first stimulus (U1) and the second stimulus (U2) is the color difference.

11. A test device according to Claim 1 or 10, characterized in that the first stimulus (U1) existing inside the image source is in the form of green circle.

12. A test device according to Claim 1 or 10, characterized in that the second stimulus (U2) existing inside the image source is in the form of red circle.

13. A test device according to Claim 1, characterized in that there is a touch-screen (20) in order to be able to select the responses of the individuals against the stimulus (U1, U2).

14. A test method which is designed for measuring the response duration of the individuals against the stimulus, characterized by comprising the steps of:

a. Recording of the individual to the operating system (10),
b. Starting the test from the data source (14) in the direction of the predetermined timings in relation to the processor unit (11) timer (18),
c. The operating system (10) displays the first stimulus (U1) on the screen (20),
d. The first stimulus (U1) waits on the screen (20) in order for the individual to give response,
e. The response duration of the individual or the no response of the individual is recorded by the record unit (15),
f. The operating system (10) displays the second stimulus (U2) on the screen (20),
g. The second stimulus (U2) waits on the screen (20) in order for the individual to give response,
h. The response duration of the individual or the no response of the individual is recorded by the record unit (15),
i. Predetermined number of stimulus (U1, U2) appears on the screen (20) sequentially,
j. The response durations of the individual or the no response of the individual against all stimulus (U1 , U2) is/are recorded by the record unit (15),
k. The test ends.

15. A test method according to Claim 14, characterized in that said operating system (10) is a computer.

16. A test method according to Claim 14, characterized in that said record unit (15) is a hard disc.

17. A test method according to Claim 14, characterized in that the difference between the first stimulus (U1) and the second stimulus (U2) is color difference.

18. A test method according to Claim 14, characterized in that said first stimulus (U1) is in the form of a green circle.

19. A test method according to Claim 14, characterized in that said second stimulus (U1) is in the form of a red circle.

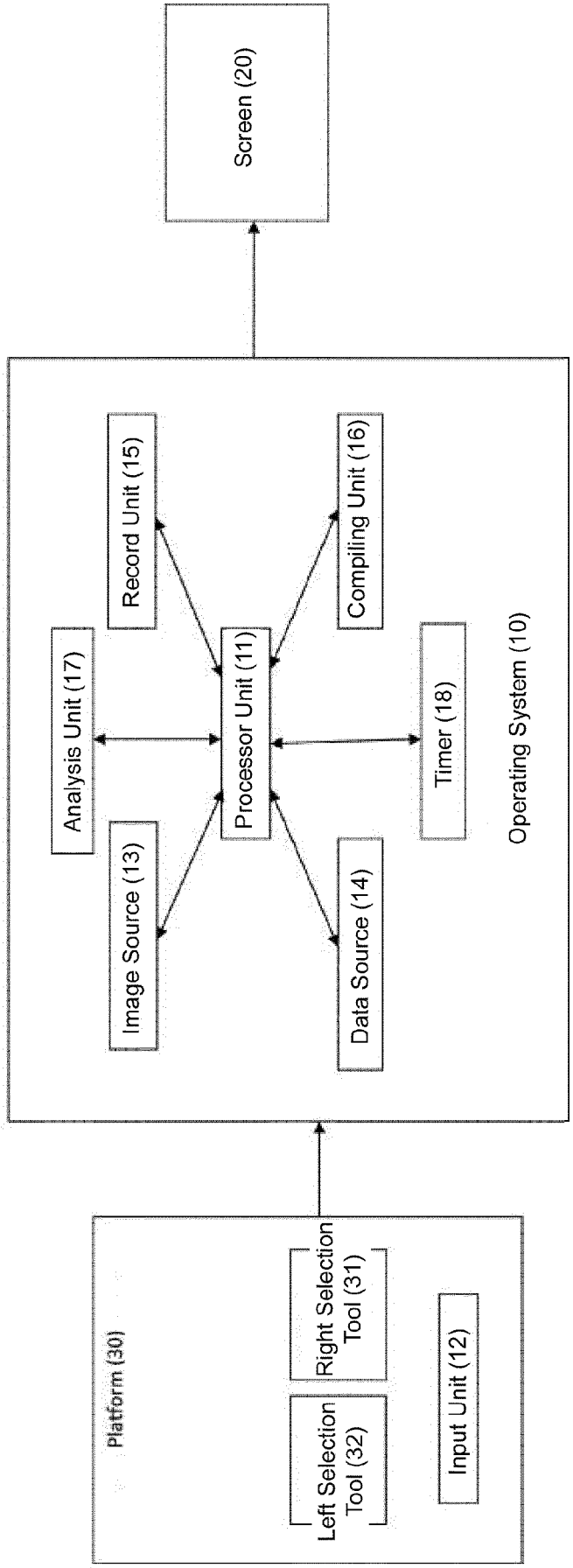
Screen (20)
Operating System (10)
Record Unit (15)
Compiling Unit (16)
Analysis Unit (17)
Processor Unit (11)
Timer (18)
Image Source (13)
Data Source (14)
Platform (30)
Right Selection Tool (31)
Left Selection Tool (32)
Input Unit (12)

Figure 1

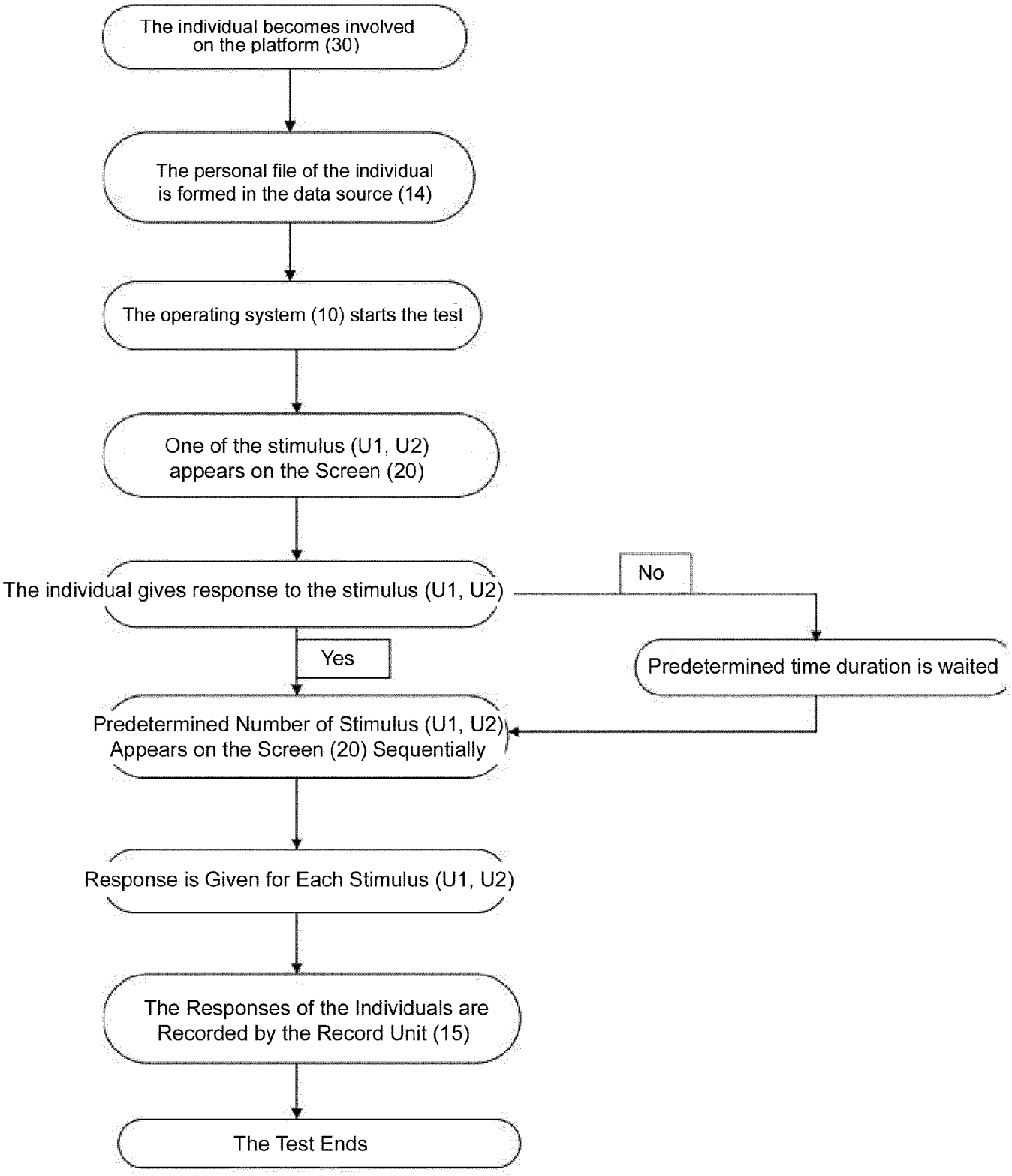
The individual becomes involved on the platform (30)
The personal file of the individual is formed in the data source (14)
The operating system (10) starts the test
One of the stimulus (U1, U2) appears on the Screen (20)
The individual gives response to the stimulus (U1, U2)
No
Predetermined time duration is waited
Yes
Predetermined Number of Stimulus (U1, U2) Appears on the Screen (20) Sequentially
Response is Given for Each Stimulus (U1, U2)
The Responses of the Individuals are Recorded by the Record Unit (15)
The Test Ends

Figure 2

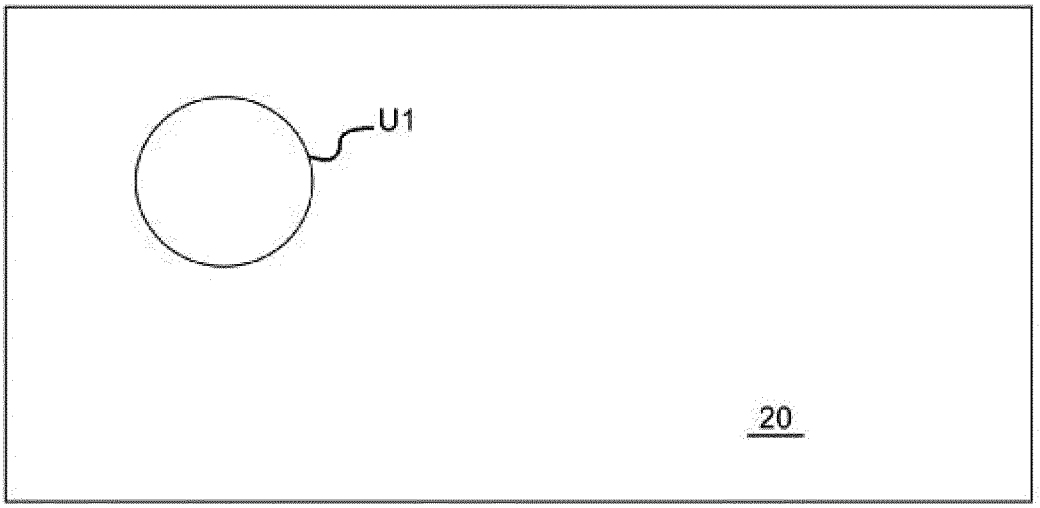

Figure 3

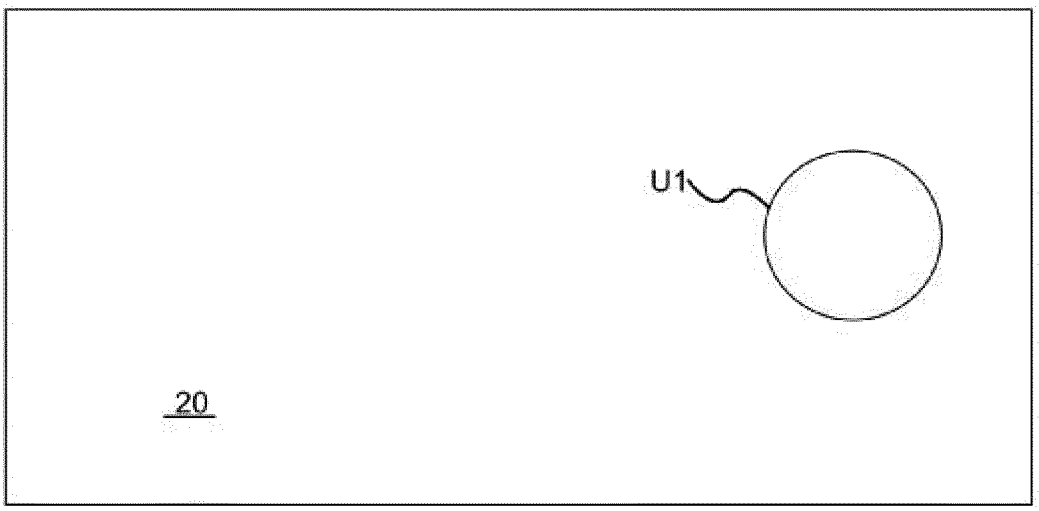

Figure 4

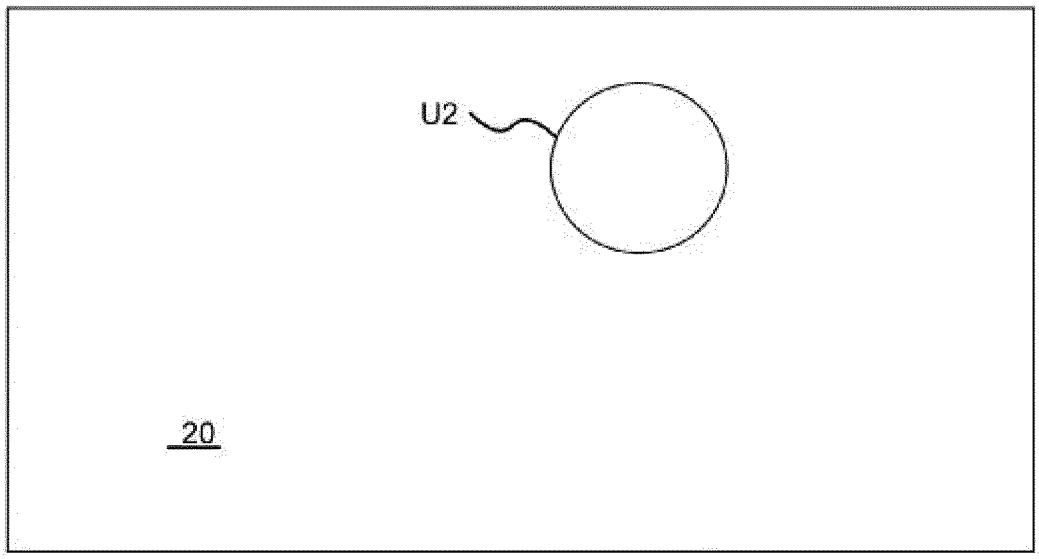

Figure 5

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2011/067222

A. CLASSIFICATION OF SUBJECT MATTER
INV. A61B5/16 A63B69/00 A63F9/00
ADD.

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)
A61B A63B A63F

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	WO 2005/122898 A1 (PLUG IN MEDICAL [DK] ; HALSE MARTIN [DK]) 29 December 2005 (2005-12-29) page 3, lines 3-18 page 5, lines 1-33 abstract; figure 1 -----	1-19
X	WO 2008/128183 A1 (NIKE INC [US] ; NIKE INTERNATIONAL LTD [US] ; REICHOW ALAN W [US] ; COULT) 23 October 2008 (2008-10-23) abstract; figures 1,2,3B,4A page 4, lines 11-29 page 6, lines 17-31 claims 12-14 ----- -/-	1-19

[X] Further documents are listed in the continuation of Box C. [X] See patent family annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
13 March 2012	20/03/2012

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