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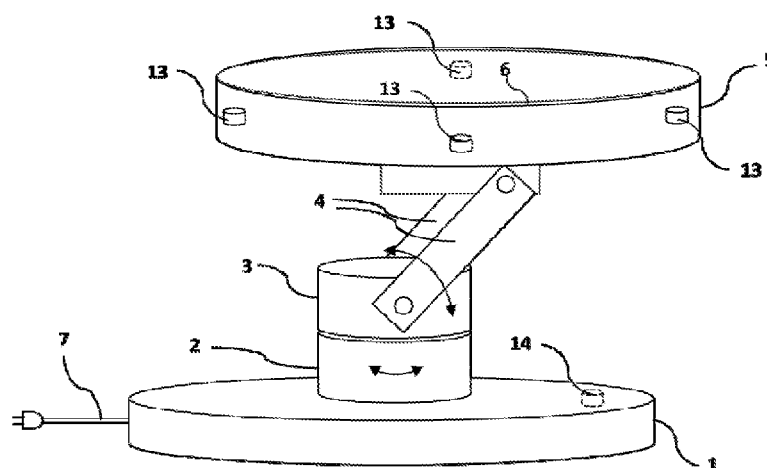


FIG. 1

(57) Abstract: The present invention is applicable to anyone who wants an option for quickly placing and locating items of daily use. The solution consists of an apparatus comprising a vessel supported by a mechanical arm that searches for the hand of the person who desires to place or search for an object and it brings the vessel closer to the hand so that the user may deposit or withdraw an object. The invention also relates to a method for giving and receiving objects that helps the user place their important personal items in a vessel that, by means of sensors and a mechanical arm, searches for the hand of the user in order to facilitate the placement and search thereof.

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METHOD AND APPARATUS FOR GIVING AND RECEIVING OBJECTS**OBJECT OF THE INVENTION**

The present invention is applicable to anyone who wants an option for quickly
5 placing and locating items of daily use. The solution consists of an apparatus comprising a vessel supported by a mechanical arm that searches for the hand of the person who desires to place or search for an object and it brings the vessel closer to the hand so that the user may deposit or withdraw an object.

The invention also relates to a method for giving and receiving objects that
10 helps the user place their important personal items in a vessel that, by means of sensors and a mechanical arm, searches for the hand of the user in order to facilitate the placement and search thereof.

BACKGROUND OF THE INVENTION

15 Human beings are constantly searching for mechanisms and instruments to facilitate their daily activities. People have personal items that are often damaged or are lost by placing them in improper places. Another drawback is that in dark places it is difficult and inconvenient to find objects due to the lack of visibility and people have to get up from the bed in order to turn on a light and search.

20 The current market has robots, mostly industrial ones, that can be programmed in order to perform different activities. There are also lamps and reflectors of mobile phones for searching for objects in the dark. Currently there are ways to locate and store items in a safe manner, for example cases, devices and applications for finding keys and mobile phones, among others.

25 U.S. Pat. No. 6445960 granted to Borta, consists of a motion platform comprising a base, a top portion, motors in the base and an arm extending between each of the positioning elements. Each of the arm assemblies is responsive to rotary motion of a respective assembly and rotates 360 degrees. The sensors detect the position of the arm, the speed and rotation of the positioning motors.

30 In U.S. Pat. No. US8463411 granted to Kent, one or more techniques are provided for variable trajectory sharing between multiple controllers in a control of multiple controllers requiring a common input variable. In one embodiment, a common input variable is shared between two controllers, wherein one controller is tuned to have dominant control with regard to the shared variable. Each controller determines
35 and communicates their own desired trajectory for the shared variable to the other

controller and in doing so, each one is shared by the other controller. Based on the communicated trajectories, the dominant controller may exercise control over the shared variable, thus improving overall process control.

5 The method and apparatus of the present invention improves all the previous solutions, resolving the drawbacks thereof.

DESCRIPTION OF THE INVENTION

10 The present invention relates to an apparatus comprising a vessel that, by means of sensors and a mechanical arm, searches for the hand of a user that wishes to place objects in said vessel in order to bring the vessel closer to the hand of the user and thus facilitate the placement thereof. Likewise when the user wished to withdraw the object from the vessel, the apparatus will search for their hand so that the same is withdrawn in the most convenient way possible.

15 The main objective of the present invention is to help the user to place their important personal items in a vessel that by means of sensors and a mechanical arm searches for the hand of the person in order to facilitate the placement and search thereof.

Another objective is to facilitate the search for important objects for the user in a dark room.

20 Another objective is to show the user the location of the apparatus in a dark place by means of dim lighting.

More specifically, the apparatus for giving and receiving objects comprises:

- a vessel configured for depositing objects;
- a base for the fastening of the apparatus;
- 25 – at least one mechanical arm joined to the vessel and to the base that is configured to lift/perform the lowering of the vessel with respect to the base;
- an actuating motor for the mechanical arm;
- a rotatable platform joined to the base and to the mechanical arm configured to rotate the vessel and facilitate the collection of the object by the user;
- 30 – a set of sensors that detect the position of the hand of a user; and
- a control unit that receives information from the sensors and positions the vessel by actuating both the mechanical arm and the rotatable platform.

35 The invention also relates to a method for giving and receiving objects that helps the user place their important personal items in a vessel that, by means of sensors and a mechanical arm, searches for the hand of the user in order to facilitate

the placement and search thereof.

More specifically, the method for giving and receiving objects by means of the apparatus comprising:

- a vessel configured for depositing objects;
- 5 – a base for the fastening of the apparatus;
- at least one mechanical arm joined to the vessel and to the base that is configured to lift/perform the lowering of the vessel with respect to the base;
- an actuating motor for the mechanical arm;
- a rotatable platform joined to the base and to the mechanical arm configured to
10 rotate the vessel;
- a set of sensors that detect the position of the hand of a user; and
- a control unit that receives information from the sensors and positions the vessel by actuating both the mechanical arm and the rotatable platform.

comprises the following steps:

- 15 – at least one step for detecting the movement of the hand of a user by means of the set of sensors, and
- at least one step where the movement of the vessel towards the hand of the user is performed in order to withdraw or deposit the object from/in the vessel.

20 **BRIEF DESCRIPTION OF THE DRAWINGS**

Figure 1 shows a perspective view of a preferred embodiment of the apparatus for giving and receiving objects of the present invention.

Figure 2 shows a first preferred form of installation of the apparatus for giving and receiving objects of the present invention.

25 Figure 3 shows a second preferred form of installation of the apparatus for giving and receiving objects of the present invention.

PREFERRED EMBODIMENT OF THE INVENTION

30 What is offered below, with the help of the aforementioned figures 1 to 3, is a detailed description of a preferred exemplary embodiment of the apparatus and method for giving and receiving objects of the present invention.

In this exemplary embodiment, the apparatus for giving and receiving objects comprises:

- a vessel 5 configured for depositing objects;
- 35 – a base 1 for the fastening of the apparatus;

- two mechanical arms 4 joined to the vessel 5 and to the base 1 that are configured to lift/perform the lowering of the vessel 5 with respect to the base 1;
 - an actuating motor 3 for the two mechanical arms 4;
 - a rotatable platform 2 joined to the base 1 and to the mechanical arms 4
- 5 configured to rotate the vessel 5 and facilitate the collection of the object by the user;
- a set of sensors 13 that detect the position of the hand of a user; and
 - a control unit 14 that receives information from the sensors 13 and positions the vessel 5 by actuating both the mechanical arms 4 and the rotatable platform 2.

10 The vessel 5 further comprises a light 6 that can be activated when the proximity level of the hand of the user is within a range defined in order to facilitate the user placing an object in the vessel 5, or withdrawing it therefrom.

The apparatus comprises a power supply cable 7 through which it obtains the electric energy necessary for the operation of the components thereof.

15 For the location of the device, as shown in figure 2, the base 1 can be placed on a table 8, with non-slip stops 9 fastened with screws 10 or similar, or fastened to a wall, 11, as shown in figure 3, by means of a preferably L-shaped support 12 that is fastened to the wall 11 by means of screws 10 or similar and to the base 1 by means of screws 10 or similar.

20 The method for giving and receiving objects by means of the previously described apparatus is described below:

On the apparatus, which comprises a base 1 in which the movement sensors 13 are found, the actuation of the rotatable platform 2 is performed upon detecting that something is approaching the apparatus in order to direct itself towards the

25 approaching object.

Once the apparatus points in the approaching direction, the actuating motor 3 for the mechanical arms 4 is activated in order to move said mechanical arms 4 that lift the vessel 5.

When the proximity level is high enough, a light 6 in the vessel 5 of the device is

30 activated in order to facilitate the user placing an object in the vessel 5, or withdrawing it therefrom.

When the proximity level goes down, the light 6 in the vessel 5 of the apparatus is turned off and the actuating motor 3 for the mechanical arms is activated in order to move said mechanical arms 4 and lower the vessel 5 to the initial resting position of the

35 apparatus.

CLAIMS

1. An apparatus for giving and receiving objects comprising:
 - a vessel configured for depositing objects;
 - 5 – a base for the fastening of the apparatus;
 - at least one mechanical arm joined to the vessel and to the base that is configured to lift/perform the lowering of the vessel with respect to the base;
 - an actuating motor for the mechanical arm;
 - a rotatable platform joined to the base and to the mechanical arm configured to
 - 10 rotate the vessel and facilitate the collection of the object by the user;
 - an set of sensors that detect the position of the hand of a user; and
 - a control unit that receives information from the sensors and positions the vessel by actuating both the mechanical arm and the rotatable platform.
- 15 2. The apparatus of claim 1 wherein the vessel further comprises a light that can be activated when the proximity level of the hand of the user is within a range defined in order to facilitate the user placing an object in the vessel, or withdrawing it therefrom.
- 20 3. The apparatus of claim 1 wherein the light can be deactivated when the proximity level of the hand of the user is outside the range defined in order to facilitate the user placing an object in the vessel, or withdrawing it therefrom.
4. The apparatus of claim 1 that further comprises a power supply cable.
- 25 5. A method for giving and receiving objects by means of an apparatus comprising:
 - a vessel configured for depositing objects;
 - a base for the fastening of the apparatus;
 - at least one mechanical arm joined to the vessel and to the base that is
 - 30 configured to lift/perform the lowering of the vessel with respect to the base;
 - an actuating motor for the mechanical arm;
 - a rotatable platform joined to the base and to the mechanical arm configured to rotate the vessel;
 - a set of sensors that detect the position of the hand of a user; and

- a control unit that receives information from the sensors and positions the vessel by actuating both the mechanical arm and the rotatable platform;

wherein the method comprises the following steps:

- 5 – at least one step for detecting the movement of the hand of a user by means of the set of sensors, and
- at least one step where the movement of the vessel towards the hand of the user is performed in order to withdraw or deposit the object from/in the vessel.

6. The method of claim 5 by means of the apparatus which further comprises a
10 light that can be activated when the proximity level of the hand of the user is within a range defined in order to facilitate the user placing an object in the vessel, or withdrawing it therefrom,

wherein the method further comprises the following step:

- 15 – a step for activating the light when the proximity level of the hand of the user is within a range defined in order to facilitate the user placing an object in the vessel, or withdrawing it therefrom.

7. The method of claim 6 which further comprises the following step:

- 20 – a step for deactivating the light when the proximity level of the hand of the user is outside the range defined in order to facilitate the user placing an object in the vessel, or withdrawing it therefrom.

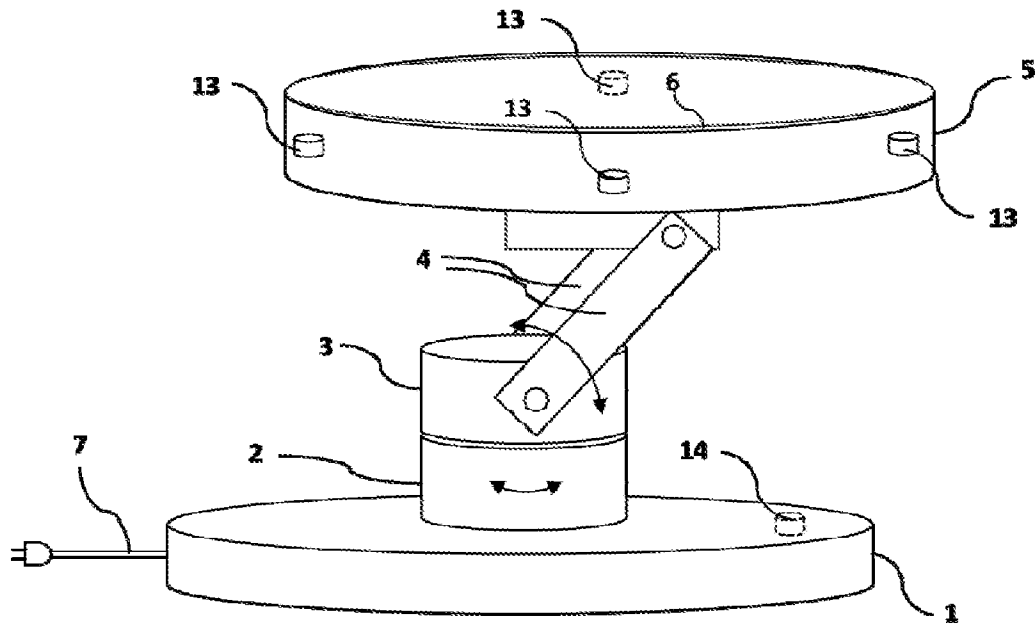


FIG. 1

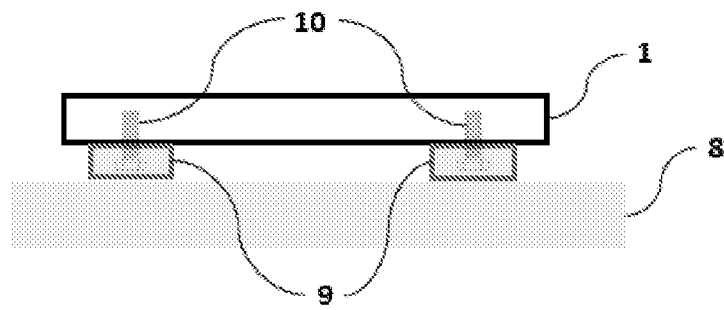


FIG. 2

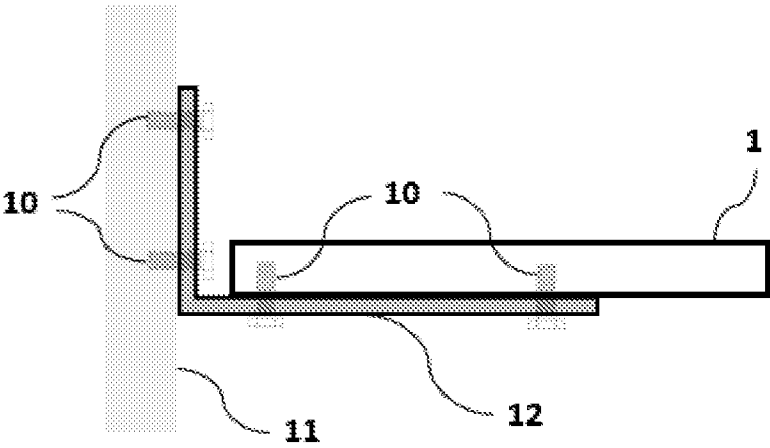


FIG. 3