

ROBOT FOR RECEIVING ARTICLES

Field of the Invention

The invention relates generally to the field of robots, and more specifically to mobile robots which are able to receive articles.

Background

Currently, human cleaners and/or waiters are deployed at venues such as food courts, hawker centres, and/or restaurants to collect articles such as food trays, empty cups or empty plates.

The use of human workers to perform such routine tasks can be labour-intensive and unproductive.

In light of the above, there is a need to reduce manpower involvement in the collection of articles such as food trays, empty cups, or empty plates.

Summary of the Invention

The present invention overcomes the limitations of the prior art by disclosing a mobile robot for receiving articles.

According to one aspect of the present invention, there is provided a robot for receiving one or more articles, comprising the following components:

- a container which is open on one side for receiving one or more articles, the container having a top surface and bottom surface and further comprising a plurality of support arms with a plurality of roller bearings or ball bearings;

- a display means attached to the top surface of the container;

- a base housing attached to the bottom surface of the container; and

- a motorized wheel assembly attached to the base housing.

Further details and advantages of the invention will become apparent from a consideration of the drawing and subsequent detailed description of the invention.

Brief Description of the Drawing

Figure 1 shows a diagram of one embodiment of the present invention.

Detailed Description of the Invention

The present invention is described herein with reference to particular embodiments. The invention is not, however, limited to such embodiments.

In some embodiments of the present invention as illustrated in Figure 1, there is disclosed a robot **101** comprising a container **102**, a display means **103** attached to the top surface of the container **102**, a base housing **104** attached to the bottom surface of the container **102**, a processing module **105** situated within the base housing **104**, and a motorized wheel assembly **106** attached to the base housing **104**.

The container **102** is open on one side and includes several pairs of support arms **107** which are configured to receive articles such as food trays. Each support arm **107** contains bearings **108**, such as roller bearings or ball bearings, so that articles (such as food trays) which are loaded onto the support arm **107** can easily slide in and out along the length of the support arm **107**. There are also article sensor means **109** which are deployed along each support arm **107**, for detecting one or more articles (such as food trays) which are loaded onto each pair of support arm **107**.

The robot **101** will move along a pre-configured route at a venue such as a food court or hawker centre. When a user stands in front of the robot **101**, the physical object sensor means **110** which are attached to the base housing **104** will detect the user, and the processing module **105** will cause the robot to stop. Subsequently, the user may deposit an article such as his or her food tray into the container **102**, by placing that food tray onto a pair of support arms **107**.

When the user moves away from the robot **101**, the robot **101** will continue on its way along the pre-configured route, and continue to collect empty cups, plates, and/or food trays from other users.

The article sensor means **109** will detect whether each pair of support arm **107** is fully loaded, or can continue to receive more articles. When all the pairs of support arms **107** are fully loaded, the processing module **105** will cause the robot **101** to return to the kitchen or some other pre-determined location such as a washing area, so that the articles which have been loaded into the container **102** can be removed and washed.

The display means **103** can display any information, including details of the robot manufacturer, food court, or hawker centre, or details such as whether the robot is fully loaded.

There are several modifications or variations which may be made to one or more of the above-described embodiments without departing from the scope of the invention. Although these modifications or variations have not been described, a person skilled in the art will be able to recognize and/or make such modifications or variations.

The Claims

1. A robot for receiving one or more articles, comprising
 - a container which is open on one side for receiving one or more articles, the container having a top surface and bottom surface and further comprising a plurality of support arms with a plurality of roller bearings or ball bearings;
 - a display means attached to the top surface of the container;
 - a base housing attached to the bottom surface of the container; and
 - a motorized wheel assembly attached to the base housing.
2. The robot of claim 1, wherein the one or more articles are food trays.
3. The robot of claim 1, wherein the base housing further comprises one or more sensor means for detecting physical objects in the environment of the robot.
4. The robot according to claims 1, 2 or 3, wherein the container further comprises one or more sensor means for detecting articles which are placed within the container.