TITLE: PRIZE ACQUISITION ARCADE GAME WITH ROBOT

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority under 35 U.S.C. § 119(e) to provisional patent applications U.S. Serial No. 63/287,886, filed December 9, 2021, and U.S. Serial No. 63/370,206, filed August 2, 2022. The provisional patent applications are hereby incorporated by reference in their entireties, including without limitation, the specifications, claims, and any figures, tables, appendices, or drawings thereof.

TECHNICAL FIELD

[0002] The invention relates generally to arcade games. More specifically, the invention relates to an arcade game wherein embodiments of the game are for a player to capture an object.

BACKGROUND

[0003] The background description provided herein gives context for the present disclosure. Work of the presently named inventors, as well as aspects of the description that may not otherwise qualify as prior art at the time of filing, are neither expressly nor impliedly admitted as prior art.

[0004] Crane-style arcade games have an electronic control system and a mechanical system that allows a player to purchase a chance to win a prize by skillful manipulation of player controls. The controls typically include a joystick and/or buttons. These controls allow the player to move a crane head in front/back and left/right directions above a supply of prizes and then drop a claw which will pick up prize merchandise if skillfully and properly manipulated. United States Patent Application No. 2010/0099475 with a named inventor Soichi shows a similar game wherein the crane mechanism is replaced by a humanoid bipedal walking robot. However, the control of the robot by a player is rudimentary, and the robot lacks any significant interaction with the player. The game playing experience can be improved by providing better and more interactive control of the robot as well as meaningful interaction between the robot and the player and improved functionality of the robot.

SUMMARY

[0005] The following features, advantages, aspects, and/or embodiments, are not exhaustive and do not limit the overall disclosure. No single embodiment need provide each and every feature, or advantage. Any of the features, advantages, aspects, and/or embodiments disclosed herein can be integrated with one another, either in full or in part.

[0006] It is a primary feature, and/or advantage of the present disclosure to improve on or overcome the deficiencies in the art.

[0007] It is a further feature, and/or advantage of the present disclosure to provide an arcade game that permits a player to capture prizes within the arcade game by controlling a robot.

[0008] According to an aspect of the present invention, there is provided an arcade game that includes a cabinet containing a plurality of items; and a robot within the cabinet, wherein the robot is adapted to be controlled by a player to capture one or more of the items. The robot may include a stationary base; a lower member rotatably connected to the base to rotate about a first generally vertical axis; a torso member rotatably mounted to the lower member that rotates about a second axis that is generally horizontal; an arm member rotatably mounted to the torso member to rotate about a third axis that is generally parallel to the second axis; the arm member having a first member that is mounted to the torso member and a second member that is axially aligned with the first member and located distally away from the torso member; the first and second members of the arm member being swivelly mounted to each other to rotate about a fourth axis that is generally axially aligned with the first and second members of the arm member; and a hand portion rotatably mounted at a distal end of the second member of the arm member to rotate about a fifth axis that is generally transverse to the fourth axis. The hand portion may include hand-like pincers for grasping and releasing items. The robot may include a head portion mounted to the second member of the arm member. The head portion may include a video screen that displays facial features. The head portion may include an image capturing device, such as a video camera. The game may also include a computer media in connection with the image capturing device that permits facial recognition of returning players. The cabinet may have the shape of a hexagonal prism that permits viewing of game play from all angles around the cabinet.

[0009] According to another embodiment, the disclosure describes an articulated robotic arm on a rotating lower member adapted to capture prizes in an arcade game that includes a video screen mounted on one of the proximal arm members having the appearance of a head and animated face.

[0010] According to another embodiment, an articulated robotic arm has a base, a first arm member that is mounted to rotate around a vertical axis on the base, a second arm member that is hinged to the first arm member to rotate about a horizontal axis, and a third arm member hinged to the second arm member to rotate about a second horizontal axis; a claw adapted to acquire prizes attached to the third arm member; and a video screen mounted to the top of the third arm member having the appearance of a head and animated face. The third arm member may include

approximately 40 degrees rearward on the first horizontal axis from a vertical orientation and approximately 50 degrees forward on the first horizontal axis from the vertical orientation.

[0014] According to another feature, a remote user can control the robot including speaking to a player or potential player so that the robot responds to the player or potential player in real time.

[0015] These and/or other features, advantages, aspects, and/or embodiments will become apparent to those skilled in the art after reviewing the following brief and detailed descriptions of the drawings. The present disclosure encompasses (a) combinations of disclosed aspects and/or embodiments and/or (b) reasonable modifications not shown or described.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] Several embodiments in which the present disclosure can be practiced are illustrated and described in detail, wherein like reference characters represent like components throughout the several views. The drawings are presented for exemplary purposes and may not be to scale unless otherwise indicated.

[0017] Figure 1 is a front perspective view of an arcade game with a robot.

[0018] Figure 2 is a side perspective view of the arcade game of Figure 1.

[0019] Figure 3 a perspective view of an arcade game with a robot with side doors opened to permit access to the robot and prize area.

[0020] Figure 4 is a detail view of a robot and prize supporting structure of the arcade game of Figure 3.

[0021] Figure 5 is a detail view of a robot illustrating the axes around which the robot can pivot.

[0022] Figure 6 is a top plan view illustrating rotation about Axis 1 of Figure 5.

[0023] Figure 7 is a side elevation view illustrating rotation about Axis 2 of Figure 5.

[0024] Figure 8 is a side elevation view illustrating rotation about Axis 3 of Figure 5.

[0025] Figure 9 is a front elevation view illustrating rotation about Axis 4 of Figure 5.

[0026] Figure 10 is a side elevation view illustrating rotation about Axis 5 of Figure 5.

[0027] Figure 11 is a detail view of the claw of Figure 5 illustrating rotation of the claw portions about Axis 6 of Figure 5.

[0028] Figure 12A shows a robot performing a dance.

[0029] Figure 12B shows the robot of Figure 12A at a later time in dance simulating clapping.

[0030] Figure 13A shows a robot being positioned with the claw above a prize.

[0031] Figure 13B shows the robot of Figure 13A being lowered toward the prize.

[0032] Figure 13C shows the robot of Figure 13B after it has captured the prize within the claw.

CLAIMS

What is claimed is:

1. An arcade game comprising:

    a cabinet containing a plurality of items; and

    a robot within the cabinet, wherein the robot is adapted to be controlled by a player to capture one or more of the items; wherein the robot comprises:

    a stationary base;

    a lower member rotatably connected to the base to rotate about a first generally vertical axis;

    a torso member rotatably mounted to the lower member that rotates about a second axis that is generally horizontal;

    an arm member rotatably mounted to the torso member to rotate about a third axis that is generally parallel to the second axis; the arm member having a first member that is mounted to the torso member and a second member that is axially aligned with the first member and located distally away from the torso member; the first and second members of the arm member being swivelly mounted to each other to rotate about a fourth axis that is generally axially aligned with the first and second members of the arm member; and

    a hand portion rotatably mounted at a distal end of the second member of the arm member to rotate about a fifth axis that is generally transverse to the fourth axis.

2. The arcade game of claim 1, wherein the hand portion includes hand-like pincers for grasping and releasing items.

3. The arcade game of claim 2, further comprising a head portion mounted to the second member of the arm member.

4. The arcade game of claim 3, wherein the head portion includes a video screen that displays facial features.

5. The arcade game of claim 3, wherein head portion includes an image capturing device, such as a video camera.

6. The arcade game of claim 5, further comprising a computer media in connection with the image capturing device that permits facial recognition of returning players.

7. The arcade game of claim 1, wherein the cabinet has the shape of a hexagonal prism.