

CLAIMS:

1. A robotic system comprising a multi-sectional show robot, wherein the multi-sectional show robot comprises:

at least one controller;

a primary robot comprising one or more sensors configured to acquire feedback indicative of an environment surrounding the primary robot, wherein the primary robot comprises a first appearance corresponding to a first character of a theme; and

a plurality of secondary robots, capable of independently traversing different paths than the primary robot, comprising a first secondary robot having a second appearance corresponding to a second character of the theme, and the plurality of secondary robots comprising a second secondary robot,

wherein the first secondary robot and the second secondary robot are configured to removably couple to the primary robot to transition the multi-sectional show robot between a disengaged configuration, in which the primary robot is decoupled from the first secondary robot,

and the second secondary robot, a first engaged configuration, in which the primary robot is coupled to the first secondary robot, and second engaged configuration, in which the primary robot is coupled to the second secondary robot, wherein the at least one controller is configured to instruct at least the primary robot based on the feedback and one more a first character control scheme with the multi sectional show robot in the disengaged configuration, and wherein the at least one controller is configured to instruct the primary robot and the first secondary robot based on one or more second character control schemes with the multi-sectional show robot in the first engaged configuration.

2. The robotic system of claim 1, wherein the first secondary robot comprises one or more additional sensors, wherein the at least one controller comprises a controller corresponding to the primary robot and an additional controller corresponding to the first secondary robot, and wherein the one or more additional sensors are configured to acquire additional feedback indicative of an environment surrounding the first secondary robot.

3. The robotic system of claim 2, wherein the additional controller is configured to:
instruct the first secondary robot based on at least the additional feedback and a first determination that the multi-sectional show robot is in the disengaged configuration; and
instruct the first secondary robot based on at least the additional feedback and a second determination that the multi-sectional show robot is in the first engaged configuration.
4. The robotic system of claim 1, wherein at least the primary robot, the first secondary robot, or the second secondary robot comprises an interaction system having at least an audio output device, a visual output device, or a gesture output device.
5. The robotic system of claim 1, wherein the one or more first character control schemes and the one or more second control schemes define movement specifications of a propulsion system of at least the primary robot.
6. The robotic system of claim 1, comprising a system controller and a machine vision system communicatively coupled to the system controller, wherein the machine vision system is configured to acquire image data of at least the primary robot, the first secondary robot, or the second secondary robot, and wherein the system controller is configured to monitor a relative position of at least the primary robot, the first secondary robot, or the second secondary robot, based on the image data.
7. The robotic system of claim 1, wherein the primary robot comprises a ride vehicle of an attraction.
8. The robotic system of claim 1, wherein, in the first engaged configuration or the second engaged configuration of the multi-sectional show robot, the primary robot and at least the first secondary robot or the second secondary robot are coupled via a tether.
9. The robotic system of claim 1, wherein the first character differs from the second character.

10. The robotic system of claim 1, wherein the first character is the same as the second character.

11. The robotic system of claim 1, wherein the one or more first character control schemes is one or more of character control schemes of a plurality of character control schemes stored in a first character control library, and the one or more second character control schemes is one or more of character control schemes of a plurality of character control schemes stored in a second character control library.

12. A method for operating a multi-sectional show robot, comprising:

generating feedback indicative of an environment surrounding a primary robot of the multi-sectional show robot via one or more sensors of the primary robot, wherein the primary robot comprises a first appearance corresponding to a first character of a theme;

instructing, via one or more controllers, at least the primary robot or a first secondary robot to cause one or more first movements of at least the primary robot or the first secondary robot, wherein the first secondary robot is capable of independently traversing a different path than the primary robot and comprises a second appearance corresponding to a second character of the theme, the second appearance differing from the first appearance, and wherein the one or more first movements are based on a one or more character control schemes and the feedback, and the feedback indicating a first spatial relationship between the primary robot and the first secondary robot; and

instructing, via the one or more controllers, at least the primary robot or a second secondary robot to cause one or more second movements of at least the primary robot or the second secondary robot, wherein the one or more second movements are based on on the one or more character control schemes and the feedback and the feedback, the feedback indicating a second spatial relationship between the primary robot and the second secondary robot, and wherein the one or more second movements are different than the one or more first movements.

13. The method of claim 12, comprising:

executing a loading procedure to couple the first secondary robot to the primary robot; transporting the first secondary robot from an initial location to a target location via the primary robot; and

decoupling the first secondary robot from the primary robot at the target location to deposit the first secondary robot at the target location.

14. The method of claim 12, comprising:

determining, based on the feedback, that the first spatial relationship corresponds to a first engaged configuration in which the first secondary robot is coupled to the primary robot; and

determining, based on the feedback, that the second spatial relationship corresponds to a second engaged configuration in which the second secondary robot is coupled to the primary robot.

15. The method of claim 12, wherein the one or more first movements comprise at least the primary robot or first secondary robot moving along a first path based on the one or more character control schemes, and wherein the one or more second movements comprise at least the primary robot or second secondary robot moving along a second path based on the one or more character control schemes, the second path differing from the first path.

16. The method of claim 12, comprising:

generating first additional feedback indicative of a first additional environment surrounding the first secondary robot of the multi-sectional show robot via one or more first additional sensors of the first secondary robot;

generating second additional feedback indicative of a second additional environment surrounding the second secondary robot of the multi-sectional show robot via one or more second additional sensors of the second secondary robot;

monitoring, based on at least the feedback, the first additional feedback, or the second additional feedback, an interaction area surrounding the multi-sectional show robot to identify an occurrence of a guest interaction by a guest with the multi-sectional show robot;

instructing, via the one or more controllers and in response to the occurrence of the guest interaction, at least the primary robot or the first secondary robot to cause one or more first audio outputs directed at the guest; and

instructing, via the one or more controllers and in response to the occurrence of the guest interaction, at least the primary robot or the second secondary robot to cause one or more second audio outputs directed at the guest, the one or more second audio outputs differing from the one or more first audio outputs.

17. The method of claim 12, wherein:

the one or more first movements comprise the primary robot moving at a first movement speed and a first movement style and the first secondary robot moving at a second movement speed and a second movement style based on the one or more character control schemes, the first movement speed differing from the second movement speed and the first movement style differing from the second movement style; and

the one or more second movements comprise the primary robot moving at a third movement speed and a third movement style and the second secondary robot moving at a fourth movement speed and a fourth movement style based on the one or more character control schemes, the third movement speed differing from the fourth movement speed and the third movement style differing from the fourth movement style.

18. The method of claim 12, comprising:

generating first additional feedback indicative of a first additional environment surrounding the first secondary robot of the multi-sectional show robot via one or more first additional sensors of the first secondary robot;

generating second additional feedback indicative of a second additional environment surrounding the second secondary robot of the multi-sectional show robot via one or more second additional sensors of the second secondary robot;

monitoring, based on at least the feedback, the first additional feedback, or the second additional feedback, an interaction area surrounding the multi-sectional show robot to identify an occurrence of a guest interaction by a guest with the multi-sectional show robot;

instructing, via the one or more controllers and in response to the occurrence of the guest interaction, at least the primary robot or the first secondary robot to cause one or more first gesture outputs directed at the guest; and

instructing, via the one or more controllers and in response to the occurrence of the guest interaction, at least the primary robot or the second secondary robot to cause one or more second gesture outputs directed at the guest, the one or more first gesture outputs differing from the one or more second gesture outputs.

19. The method of claim 12, comprising:

generating first additional feedback indicative of a first additional environment surrounding the first secondary robot of the multi-sectional show robot via one or more first additional sensors of the first secondary robot;

generating second additional feedback indicative of a second additional environment surrounding the second secondary robot of the multi-sectional show robot via one or more second additional sensors of the second secondary robot;

monitoring, based on at least the feedback, the first additional feedback, or the second additional feedback, an interaction area surrounding the multi-sectional show robot to identify an occurrence of a guest interaction by a guest with the multi-sectional show robot;

instructing, via the one or more controllers and in response to the occurrence of the guest interaction, at least the primary robot or the first secondary robot to cause one or more first visual outputs directed at the guest via one or more displays of the multi-sectional show robot; and
instructing, via the one or more controllers and in response to the occurrence of the guest interaction, at least the primary robot or the second secondary robot to cause one or more second visual outputs directed at the guest, the one or more second visual outputs differing from the one or more first visual outputs.

20. The method of claim 12,

wherein the one or more first movements are based on one or more character control schemes of a plurality of character control schemes stored in a first character control library and the feedback, and

wherein the one or more second movements are based on one or more character control schemes of a plurality of character control schemes stored in a second character control library and the feedback.

21. A multi-sectional show robot, comprising:

a primary robot comprising one or more sensors configured to acquire feedback indicative of a first environment surrounding the primary robot, wherein the primary robot comprises a first appearance corresponding to a first character of a theme;

a secondary robot, capable of independently traversing a different path than the primary robot, comprising one or more additional sensors configured to acquire additional feedback indicative of a second environment surrounding the secondary robot, wherein the secondary robot comprises a second appearance corresponding to a second character of the theme, wherein the first appearance differs from the second appearance; and

a computing system comprising at least a first controller of the primary robot or a second controller of the secondary robot, wherein the computing system is configured to:

receive an indication that the primary robot is coupled to the secondary robot; and
in response to receiving the indication, instruct the primary robot and the secondary robot to cause an operation of the primary robot and the secondary robot based on one or more character control schemes and at least the feedback or the additional feedback, or both.

22. The multi-sectional show robot of claim 21, wherein the computing system is configured to:

monitor, based on at least the feedback or the additional feedback, an interaction area surrounding the multi-sectional show robot to identify an occurrence of a guest interaction by a guest with the multi-sectional show robot; and

in response to determining the occurrence of the guest interaction, instruct at least the primary robot or the secondary robot to cause a movement of at least the primary robot or the secondary robot, the movement corresponding to a gesture directed at the guest.

23. The multi-sectional show robot of claim 21, comprising:

an additional secondary robot comprising a third appearance corresponding to a third character of the theme, wherein the third appearance differs from the first appearance and the second appearance, and the computing system is configured to:

receive an additional indication that the primary robot is coupled to the additional secondary robot; and

in response to receiving the additional indication, instruct the primary robot and the additional secondary robot to cause an additional operation of the primary robot and the additional secondary robot based on at least the one or more character control schemes.

24. The multi-sectional show robot of claim 21, wherein the computing system is configured to:

detect, based on at least the feedback or the additional feedback, a collision between the primary robot and the secondary robot or an additional collision between the primary robot and an object separate from the secondary robot; and

instruct the primary robot to cause a movement of the primary robot in response to detecting the collision or the additional collision.

25. The multi-sectional show robot of claim 21, wherein the computing system is configured to:

select the one or more character control schemes from a plurality of character control schemes stored in a character control library in response to receiving the indication, wherein the one or more character control schemes comprises at least a set of audio recordings, visual displays, or gesture movements;

receive an additional indication that the primary robot is decoupled from the secondary robot; and

select an additional one or more character control schemes from the plurality of character control schemes stored in the character control library in response to receiving the additional indication, wherein the additional one or more character control schemes comprises at least an additional set of audio recordings, visual displays, or gesture movements, and the one or more character control schemes differ from the additional one or more character control schemes.

26. The multi-sectional show robot of claim 18, wherein the first character differs from the second character.

27. The multi-sectional show robot of claim 21, wherein the computing system is configured to:

in response to receiving the indication, instruct the primary robot to cause an operation of the primary robot based on one or more character control schemes of a plurality of character control schemes stored in a first character control library and at least the feedback and instruct the secondary robot to cause an operation of the secondary robot based on one or more character control schemes of a plurality of character control schemes stored in a second character control library and at least the additional feedback.