

SHOW ELEMENT ACTUATION SYSTEM AND METHOD

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims priority from and the benefit of U.S. Provisional Application Serial No. 63/553,851, entitled “SHOW ELEMENT ACTUATION SYSTEM AND METHOD”, filed February 15, 2024, which is hereby incorporated by reference in its entirety.

BACKGROUND

[0002] A venue, such as an amusement park, may include a variety of attractions. The attractions may include ride vehicles that carry passengers along a ride path. Some attractions may also incorporate show elements (e.g., animated figures) along the ride path to enhance guest experiences, such as by adding elements of interest and surprise.

[0003] With increasing sophistication and complexity of modern ride attractions, it is presently recognized that it may be desirable to provide improved and more creative visual effects by enabling show element interaction with the ride vehicles to create unique experiences for the guests in the attractions. However, it is also presently recognized that interactions of the show elements with the ride vehicles may be complex and difficult.

[0004] This section is intended to introduce the reader to various aspects of art that may be related to various aspects of the present disclosure, which are described and/or claimed below. This discussion is believed to be helpful in providing the reader with background information to facilitate a better understanding of the various aspects of the present disclosure. Accordingly, it should be understood that these statements are to be read in this light, and not as admissions of prior art.

BRIEF DESCRIPTION

[0005] Certain embodiments commensurate in scope with the originally claimed subject matter are summarized below. These embodiments are not intended to limit the scope of the claimed subject matter, but rather these embodiments are intended only to provide a brief summary of possible forms of the subject matter. Indeed, the subject matter may encompass a variety of forms that may be similar to or different from the embodiments set forth below.

[0006] In an embodiment, a ride system includes a ride vehicle and a show element coupled to the ride vehicle, wherein the show element includes an actuator coupled to a prop. The ride system also includes a control system configured to generate one or more show effects for the ride system, instruct the actuator to actuate the prop, wherein actuating the prop causes the prop to move from a hidden configuration to a visible configuration, and coordinate display of the one or more show effects with the prop transitioning to the visible configuration.

[0007] In an embodiment, a tangible, non-transitory, computer-readable medium includes instructions that, when executed by a processor, are configured to cause the processor to generate a show effect, instruct an actuator to actuate a prop, wherein actuating the prop causes the prop to move from a hidden configuration to a visible configuration based on the show effect, and coordinate display of the show effect with the prop transitioning to the visible configuration.

[0008] In an embodiment, a ride system includes a ride vehicle, including one or more show elements, the one or more show elements including one or more actuators coupled to one or more props, and one or more displays. The ride system also includes a control system including a processor and a memory, the memory encoded with instructions configured to be executed by the processor to cause the attraction control system to generate one or more show effects for the ride system, wherein the one or more show effects include image data, transmit the image data to the one or more displays to cause

display of one or more images, actuate the one or more props via the one or more actuators in coordination with the display of the one or more images.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] These and other features, aspects, and advantages of the present disclosure will become better understood when the following detailed description is read with reference to the accompanying drawings in which like characters represent like parts throughout the drawings, wherein:

[0010] FIG. 1 is a perspective view of a ride system with an integrated show element, in accordance with an embodiment of the present disclosure;

[0011] FIG. 2 is a block diagram of a ride system including a control system, a ride vehicle, and one or more show effects, in accordance with an embodiment of the present disclosure;

[0012] FIG. 3 is a side view of a ride vehicle of the ride system, wherein an integrated show effect is actuating between a hidden configuration and a visible configuration, in accordance with an embodiment of the present disclosure;

[0013] FIG. 4 is a top view of a ride vehicle with an integrated display and an integrated show element actuating between a hidden configuration and a visible configuration relative to the display, in accordance with an embodiment of the present disclosure; and

[0014] FIG. 5 is a perspective side view of the ride vehicle of FIG. 4, in accordance with an embodiment of the present disclosure.

DETAILED DESCRIPTION

[0015] The present disclosure generally relates to systems and methods for actuating one or more show elements integrated with a ride vehicle, which may be done in coordination with one or more show effects. The show effects may include other show

elements (e.g., actuatable prop, animated figure) or visual effects (e.g., lighting effects, pyrotechnics, display effects). Present embodiments may include an actuation element that is integral with the ride vehicle and operable to move relative to another ride vehicle component in transition from a hidden configuration into a visible configuration. This transition of the actuation element may be coordinated with one or more show effects to create an illusion of physical contact or close interaction of the one or more other show effects with the ride vehicle.

[0016] One or more specific embodiments of the present disclosure will be described below. In an effort to provide a concise description of these embodiments, all features of an actual implementation may not be described in the specification. It should be appreciated that in the development of any such actual implementation, as in any engineering or design project, numerous implementation-specific decisions must be made to achieve the developers' specific goals, such as compliance with system-related and business-related constraints, which may vary from one implementation to another. Moreover, it should be appreciated that such a development effort might be complex and time-consuming, but would nevertheless be a routine undertaking of design, fabrication, and manufacture for those of ordinary skill having the benefit of this disclosure.

[0017] When introducing elements of various embodiments of the present disclosure, the articles “a,” “an,” and “the” are intended to mean that there are one or more of the elements. The terms “comprising,” “including,” and “having” are intended to be inclusive and mean that there may be additional elements other than the listed elements. Additionally, it should be understood that references to “one embodiment” or “an embodiment” of the present disclosure are not intended to be interpreted as excluding the existence of additional embodiments that also incorporate the recited features.

[0018] Generally, amusement park attractions (e.g., roller coasters or dark rides) include ride vehicles that move along a ride path (e.g., ride track). Additionally, some amusement park attractions include show effects such as animated figures, props, lighting effects, screen displays, etc. that may be utilized to augment a visual experience for

passengers in the ride vehicles. Traditionally, the show effects are disposed at specific locations in the amusement park attraction. For example, a show element, such as an animated figure, may be positioned near a ride path and may be actuated when in view of passengers as their ride vehicle passes by the animated figure. However, as the ride vehicle continues along the ride track, the passengers are eventually no longer in the vicinity of the animated figure and are unable to view it. With this in mind, an embodiment of the present disclosure is directed to a show element that moves with the ride vehicle to provide interactions in coordination with the one or more other show effects to enable a unique visual experience for the passengers. For example, an animated figure of a dragon positioned near a ride vehicle may be perceived as actually contacting the ride vehicle based on coordinated actuation of the animated figure and a show element (e.g., an actuatable prop designed to look like a dragon claw) coupled with the ride vehicle.

[0019] With the foregoing in mind, an embodiment of systems and methods described herein relates generally to controlling a show element of a ride vehicle of an attraction to enable coordination and/or interaction between the show element and a show effect of the attraction. A show element may include an actuator (e.g., one or more actuators), which may be coupled to a prop (e.g., one or more props) such that the actuator can transition the prop between a hidden configuration and a visible (e.g., exposed) configuration. In the hidden configuration, the actuator may orient the prop relative to one or more ride vehicle features (e.g., a roof, a side wall, a display screen mounted on the ride vehicle) such that the prop is hidden from a view of any passengers of the ride vehicle (e.g., passengers properly seated within the ride vehicle). For example, an actuator of a show element may be coupled to a roof of the ride vehicle, on a side of the roof opposite a cabin for housing passengers, such that the actuator is not viewable by the passengers. At various points of time during a ride, a control system may be configured to actuate the actuator to rotate, translate, extend, and/or otherwise move the attached prop (and/or other portion of the show element) into the view of the passengers. The control system may be programmed to actuate the actuator based on one or more show effects in the attraction such that coordination between the show element and one or more show effects is achieved. In this

manner, the show element and the show effects may cooperate to create an illusion of contact (e.g., physical contact) with and/or manipulation of the ride vehicle by the one or more show effects.

[0020] As an example, the attraction may include show effects that form parts of a media environment visually depicting an ocean to the passenger. The show effects may include an animated figure of a shark, which may be actuated such that it visually appears to be swimming toward the ride vehicle through the ocean displayed within the attraction. Additionally, the show element may be coupled to a bottom of the ride vehicle and may include an appendage, such as a prop that looks like the head of the shark. As the animated figure representing the shark approaches the vehicle, the show effects may be adjusted to provide an appearance of the shark disappearing or the ride vehicle may be positioned such that the animated figure is no longer within a field of view for the passengers. In conjunction with this, the ride system may actuate the show element and move the appendage (e.g., the prop that looks like the shark's head) to transition from a hidden configuration to a visible configuration.

[0021] In the visible configuration, the appendage or prop may contact or come very close to contacting certain features of the ride vehicle. Thus, the movement of the appendage in coordination with the show effects may create an illusion of continuity and passengers may perceive that the shark, as depicted by the animated figure, has come out of the ocean to engage (e.g., bite) the ride vehicle. In accordance with embodiments of the present disclosure, such coordination between actuation of any of various types of shows elements integrated with a ride vehicle and surrounding show effects can provide cumulative visual effects that create an illusion of interaction and improve the immersive experience provided to the passengers in an attraction.

[0022] In an embodiment, a top, bottom, and/or side (e.g., wall, panel, window) of the ride vehicle may include a media display (e.g., an electronic display). Additionally, the actuator of the show element may be positioned behind the media display such that an actuated feature or appendage (e.g., a prop) may be hidden from view in a hidden

configuration (e.g., with the actuator retracted) and then moved into view in a visible configuration (e.g., with the actuator extended). The control system may cause the show effects to be displayed on the media display in coordination with the show element. For example, the media display may be used to display a creature appearing to be reaching toward the edge of the wall of the ride vehicle and the show element (e.g., an actuator with a prop depicting an arm of the creature) may be actuated to simultaneously appear on the side of the media display. In this manner, the systems and methods described herein may provide the unique visual experience for the passengers by enabling coordination of effects that cumulatively create a perception of interaction between the show elements and the ride vehicle via the show elements integrated with the ride vehicle.

[0023] FIG. 1 is a perspective view of a ride system 10 with an integrated show element 11, in accordance with an embodiment of the present disclosure. The ride system 10 may be part of an attraction 12 and may include a ride path 14 having a vehicle rail 16 and an accessory rail 18. As an example, the ride path 14 may include a ride track. In an embodiment, the accessory rail 18 may be separate from the ride path 14. The ride system 10 may also include a ride vehicle 20 (e.g., roller coaster or ride) having a ride vehicle base 22 configured to interface with the vehicle rail 16 and move along the vehicle rail 16 of the ride path 14. In an embodiment, the ride vehicle base 22 may include a friction wheel assembly 24 configured to interface with the vehicle rail 16. However, in other embodiments, the ride vehicle 20 may move along the vehicle rail 16 using any suitable propulsion or interface assembly. Additionally, the ride vehicle 20 may have one or more ride seats 26 attached to the ride vehicle base 22, such that the ride vehicle 20 may hold one or more passengers as the ride vehicle 20 travels along the ride path 14. The ride vehicle base 22 may include a frame or body of the ride vehicle 20. It should be noted that although a single show element 11 is illustrated in FIG. 1, the ride vehicle 20 may include or be coupled to any suitable number of show elements 11. Further, at least part of the show element 11 or the show elements 11 may be actuated relative at least part of the ride vehicle 20.

[0024] The show element 11 may include an actuator 28 coupled to a prop 30 (e.g., one or more props) such that the actuator 28 can transition the prop 30 between a hidden configuration and a visible configuration. That is, at various points of time during a ride, a control system may be configured to actuate the actuator 28 to rotate, translate, extend, and/or otherwise move the prop 30 (and/or other portion of the show element 11) into the view of the passengers at a viewing area 31. The viewing area 31 may be an area where the passengers may be able to view (e.g., see) the prop 30 when the prop 30 is actuated into the visible configuration. For example, the control system may cause the actuator 28 to move the prop 30 upward, downward, forward, rearward, outward, and/or inward with respect to at least part of the ride vehicle 20 (e.g., the viewing area 31).

[0025] In the hidden configuration, the actuator 28 may orient the prop 30 relative to one or more ride vehicle features (e.g., a roof, a side wall, the display 68 mounted on the ride vehicle) such that the prop is hidden from a view (e.g., of the viewing area 31) of any passengers of the ride vehicle 20. For example, the actuator 28 may be coupled to a roof of the ride vehicle, on a side of the roof opposite a cabin for housing passengers, such that the actuator 28 is not viewable by the passengers. At various points of time during a ride cycle, a control system may instruct the actuator 28 to rotate, translate, extend, and/or otherwise move the prop 30 (and/or other portion of the show element 11) into the view of the passengers. For example, the control system may actuate the actuator 28 to move the prop 30 in coordination with show effects being displayed by the attraction control system 50.

[0026] In an embodiment, an animated figure may be coupled with the accessory rail 18. The animated figure may transition along the ride path 14 via the accessory rail 18 to travel away from or toward the ride vehicle 20. In this manner, the animated figure may appear as if moving relative to the ride vehicle 20 (e.g., the viewing area 31). As such, the animated figure may move into a sightline or out of the sightline of the passengers of the ride vehicle 20. As such, the control system may be configured to actuate the actuator 28 to transition the prop 30 in coordination with the animated figure traveling toward or away

from the ride vehicle 20. As an example, the animated figure may include an animated figure of a squid, which may travel along the accessory rail 18 such that it visually appears to be swimming toward the ride vehicle 20. Additionally, the prop may include an appendage, such that the prop looks like a tentacle of the squid. The animated figure representing the squid may approach the ride vehicle 20, and in conjunction, the actuator 28 may actuate the prop 30 to move the appendage (e.g., the prop that looks like the squid's tentacle) to transition to the visible configuration. In this manner, the animated figure transitioning via the accessory rail 18 may create the perception of the squid, as depicted by the animated figure, engaging the ride vehicle 20.

[0027] In an embodiment, the ride system 10 may include a cover 27 (e.g., roof, canopy, overhead, ceiling) above, below, and/or on a side (e.g., left and/or right side) of the ride vehicle 20 at a load station of the ride vehicle 20. The cover 27 may conceal any suitable number of show elements 11 coupled to the ride vehicle 20. The cover 27 may prevent the show element 11 from being seen from the boarding area and/or while a passenger is boarding the ride vehicle 20. For example, the show element 11 may be coupled to the roof of the ride vehicle 20. The roof of the ride vehicle 20 may be hidden from the view of the passengers entering the ride vehicle 20 by the cover 27. When a ride cycle begins, the ride vehicle 20 may travel away from the cover 27.

[0028] Moreover, any suitable number of show elements 11 may be coupled to any suitable location of the ride vehicle 20. For example, each show element 11 (e.g., one or more show elements 11) may be coupled to a top portion, a bottom portion, and/or a side portion (e.g., left and/or right side) of the ride vehicle 20. Further, the show element 11 may include any actuator or mechanical device configured to actuate relative to the ride vehicle 20. For example, the actuator 28 may include a hydraulic actuator, pneumatic actuator, electric actuator, or mechanical actuator configured to drive actuation of the prop 30. In one embodiment, a mechanical linkage and the actuator 28 may be configured to drive actuation of the prop 30.

[0029] The actuator 28 may be configured to actuate the prop 30 based at least in part on the show effects of the attraction 12 such that coordination between the show element 11 and the show effects are achieved. That is, an attraction control system of the attraction 12 may generate instructions to cause the actuator 28 to actuate based at least in part on the show effects. In an embodiment, the attraction control system may generate instructions to cause the actuator 28 to actuate based at least in part on the show effects and a detected position of the ride vehicle 20 along the ride path 14. Further, a ride vehicle control system of the ride vehicle 20 may receive the instructions from the attraction control system and cause (e.g., control) actuation of the actuator 28. Additional details regarding the ride system 10 will be described below with respect to FIG. 2.

[0030] FIG. 2 is a block diagram of the ride system 10 including an attraction control system 50 (e.g., controller), the ride vehicle 20, and one or more show effects 58. The attraction control system 50 may include one or more processors 52 (referred to herein, in singular form, as a “processor 52” for convenience) and a memory 54. The attraction control system may also include communications circuitry 56. The processor 52 (which may represent one or more processors) may be any type of computer processor or microprocessor capable of executing computer-executable code. The processor 52 may also include multiple processors, processing circuitry, or a processing system that may perform the operations described herein. The memory 54 may include a volatile memory, such as random-access memory (RAM), and/or a nonvolatile memory (ROM). The memory 54 may store a variety of information and may be used for various purposes. For example, the memory 54 may store processor-executable instructions, such as instructions for controlling one or more show effects 58. The memory 54 may also include flash memory, or any suitable optical, magnetic, or solid-state storage medium, or a combination thereof. The memory 54 may store data, instructions (e.g., software or firmware), and any other suitable information. For example, the memory 54 may be encoded with instructions that are to be executed by the processor 52.

[0031] The communications circuitry 56 may include a wired or wireless communication component that facilitates communication between the control system 50, a ride vehicle control system 60 of the ride vehicle 20, the one or more show effects 58, and/or various other computing systems. The communications circuitry 56 may include antennas, transceiver circuits, and signal processing hardware, and/or software (e.g., hardware or software filters, A/D converters, multiplexers amplifiers), or a combination thereof, that may be configured to communicate over wired and/or wireless communication paths (e.g., a hardwired network, Infrared (IR) wireless communication, satellite communication, broadcast radio, Microwave radio, Bluetooth, Zigbee, Wi-fi, UHF, NFC). For example, the attraction control system 50 may generate instructions and transmit the instructions to the ride vehicle control system 60 via the communications circuitry 56. As another example, the attraction control system 50 may generate instructions to transmit to each of the show effects 58 to cause display and/or movement of the show effects 58.

[0032] The ride vehicle control system 60 of the ride vehicle 20 may include one or more processors 62 (referred to herein, in singular form, as a “processor 62” for convenience), a memory 64, and/or communications circuitry 66. The processor 62 (which may represent one or more processors) may be similar and/or the same as the processor 52. The memory 64 may be similar and/or the same as the memory 54. The communications circuitry 66 may be similar and/or the same as the communications circuitry 56. The ride vehicle 20 may also include the show element 11, a display 68, and/or one or more sensors 70. As described herein, the show element 11 may include the actuator 28 and the prop 30. For example, the prop 30 may include an appendage (e.g., body part) of a figure (e.g., human, animal, creature), an animated figure character, paddles, wings, a special effects device, and/or any suitable object that may be used to provide visual effects in conjunction with the show effects 58 of the attraction 12.

[0033] The display 68 may include any suitable display (e.g., liquid crystal display (LCD), light emitting diode (LED) display, organic light emitting diode (OLED) display, micro-LED, transparent LCD display) that receives image data and projects (e.g., displays,

transmits) the image data as imagery. The image data may be generated by and received from the attraction control system 50 and/or the ride vehicle control system 60. The image data may include objects in motion such as scenes where various elements within image frames of the image data are changing positions and/or configurations. In an embodiment, the display 68 may include at least one two-dimensional (2D) display. In an embodiment, the display 68 may include at least one three-dimensional (3D) or volumetric display such as an autostereoscopic display, a light field display, and the like. It should be noted that although a single display 68 is described herein, the ride vehicle 20 may include any suitable number of displays in any suitable portion of the ride vehicle 20. For example, the ride vehicle 20 may include a first display 68 on a right-side wall of the ride vehicle 20 and a second display 68 on a left-side wall of the ride vehicle 20.

[0034] The one or more sensors 70 may include any number of positional sensors, acceleration sensors, contact sensors, motion sensors, image sensors, or any other suitable sensor. For example, the positional sensor may enable detection of a position of the ride vehicle 20 within the attraction 12. The acceleration sensor may detect an acceleration force, such as when the ride vehicle 20 is moving through the attraction 12. The contact sensor may enable detection of a physical contact or touch with at least one show effect 58 of the attraction 12. The motion sensor may detect motion and a direction in which the ride vehicle 20 is moving. The image sensors may enable capture of image data, which may include the image data of the show effects surrounding the ride vehicle 20 within the attraction 12. The one or more sensors 70 may provide (e.g., transmit) sensor data to the attraction control system 50 and/or the ride vehicle control system 60.

[0035] In an embodiment, the one or more sensors 70 may detect a current position of the prop 30 and provide the sensor data to the attraction control system 50 and/or the ride vehicle control system 60. The attraction control system 50 and/or the ride vehicle control system 60 may then perform verification based on the sensor data to determine whether the prop 30 is an expected location (e.g., is or is not positioned correctly). For instance, if the prop 30 is not positioned correctly, the attraction control system 50 and/or the ride vehicle

control system 60 may output instructions to cause the actuator 28 to transition the prop 30 to the expected location. The ride vehicle control system 60 may receive the instructions generated by the attraction control system 50 and cause the actuator 28 to actuate based on the instructions. The ride vehicle control system 60 may instruct actuation of the actuator 28 such that coordination between the show element 11 and the show effects 58 is achieved. Accordingly, the show element 11 and the show effects 58 may cooperate to create an illusion of contact (e.g., physical contact) with and/or manipulation of the ride vehicle 20 by the show effects 58.

[0036] While the attraction control system 50 and the ride vehicle control system 60 are illustrated as separate components, in an embodiment, the attraction control system 50 and the ride vehicle control system 60 may be one component. That is, the attraction control system 50 may be partially integrated with or completely integrated with the ride vehicle control system 60. For example, the attraction control system 50 and the ride vehicle control system 60 may instruct the actuator 28 such that the prop 30 can transition between the hidden configuration and the visible configuration, generate/transmit the image data for the display 68, and/or generate/control the show effects 58 within the attraction 12.

[0037] The attraction control system 50 and/or the ride vehicle control system 60 may control the actuator 28, the display 68, and/or the show effects 58 based on a predetermined program, which may include detection and/or display of the show effects 58, and/or any other suitable factor. For example, the predetermined program may enable synchronization of various elements such as the show element 11 and the show effects 58, which may include lights, sounds, visuals, animated figures, audio, and any other suitable special effect of the attraction 12. Indeed, the predetermined program may include programmed sequences, timings, and cues to ensure each of the various elements operates in a uniform manner. The term synchronization or synchronize should be understood to mean coordinated operation that is approximately in unison and/or at a share or similar rate. In this manner, coordination between the show element 11, the show effects 58, and/or any

other special effects of the attraction 12 may be improved to create the illusion of interaction and provide the more immersive experience to the passengers.

[0038] In operation, as an example, the attraction control system 50 may be configured to generate instructions to transmit to the ride vehicle control system 60 to cause the ride vehicle 20 to move along the ride path 14. In an embodiment, the attraction control system 50 may determine the position of the ride vehicle 20, the show element 11, and/or the show effects 58 using sensor data received from the one or more sensors 70. The attraction control system 50 may then provide instructions to the ride vehicle control system 60 to cause movement and/or rotation of the show element 11. The attraction control system 50 may also (e.g., either simultaneously or at a different time period) instruct adjustment of the show effects 58 to enable the coordination, contact, and/or the interaction between the show element 11 and the show effects 58. Additional details regarding coordination between the show element 11 and the show effects 58 will be described below with respect to FIGS. 3-5.

[0039] With the foregoing in mind, FIG. 3 is a side view of the ride vehicle 20 of the ride system 10, in accordance with embodiments of the present disclosure. As illustrated, the ride vehicle 20 may include a passenger 90 and the show element 11, which may include the actuator 28 and the prop 30. As described herein, the attraction control system 50 and/or the ride vehicle control system 60 may cause the actuator 28 to orient the prop 30 relative to one or more features of the ride vehicle 20 (e.g., the viewing area 31) such that the prop 30 is hidden from the view of any passengers of the ride vehicle 20 or visible in the view of the passengers. In an embodiment, the prop 30 may be oriented based on sensor data (e.g., sensor signals) received from the one or more sensors 70 indicative of a position of each of the show effects 58, the position of the show element 11, the position of the ride vehicle 20, and/or any other suitable position of a feature included in the attraction 12. In an embodiment, the prop 30 may be oriented based on a predetermined program that may be input (e.g., programmed) into the attraction control system 50 and/or the ride vehicle control system 60.

[0040] As an example, the attraction 12 may include the show effects 58 that form parts of a media environment visually depicting a vista of mountains to the passenger 90. The show effects 58 may also include an animated figure of a dragon, which may be actuated such that it visually appears to fly toward the ride vehicle 20 through a sky displayed within the attraction 12. Additionally, the prop 30 may include an appendage, such as a prop that looks like a claw of the dragon. As the animated figure representing the dragon approaches the ride vehicle 20, the attraction control system 50 may adjust the show effects 58 to provide an appearance of the dragon disappearing or the ride vehicle 20 being positioned such that the animated figure is no longer within a field of view of the passenger 90. In conjunction with this, the ride vehicle control system 60 may actuate the actuator 28 and move the prop 30 (e.g., the prop that looks like the claw) to transition from the hidden configuration to the visible configuration.

[0041] In the visible configuration, the prop 30 may contact or come very close to contacting certain features of the ride vehicle 20. For example, as shown in FIG. 3, the prop 30 may contact the roof of the ride vehicle 20. Thus, the movement of the prop 30 in coordination with the show effects 58 may create an illusion of continuity and the passenger 90 may perceive that the dragon, as depicted by the animated figure, is above the ride vehicle 20 and gripping the ride vehicle 20 via its claws while in flight. As such, the systems and methods described herein may enhance the attraction experience of the passenger 90 by providing the illusion of the animated figures and/or other show effects 58 engaging, contacting, and/or interacting with the ride vehicle 20 in coordination with the show element 11.

[0042] As another example, FIG. 4 is a top view of the ride vehicle 20 with the display 68 and the show element 11 actuating between the hidden configuration (shown in solid lines) and the visible configuration (shown in dashed lines) relative to the display 68, in accordance with embodiments of the present disclosure. As illustrated, the ride vehicle 20 may be carrying a number of passengers 90 and may include the show element 11, which may include the actuator 28 and the prop 30. Additionally, in the illustrated embodiment,

the ride vehicle 20 may include the display 68. The actuator 28 of the show element 11 may be positioned behind the display 68 such that the prop 30 may be hidden from view of the passengers 90 in the hidden configuration and then moved into view in the visible configuration. Accordingly, the attraction control system 50 and/or the ride vehicle control system 60 may cause display of media data (e.g., image data, video data) on the display 68 and/or other show effects 58 in coordination with the show element 11. As illustrated in FIG. 4, the show element 11 may begin in the hidden configuration not in view of the passengers 90. Additionally, the prop 30 may include an appendage, such as a prop that looks like a hand of a creature.

[0043] As an example, at any suitable time before, during, and/or after the ride cycle, as illustrated in FIG. 5, the display 68 may be used to display a creature. The creature may appear to be reaching toward the edge of a wall of the ride vehicle 20. As the creature's arm approaches the edge of the display 68, the prop 30 may be actuated to simultaneously appear on the side of the display 68. Indeed, the ride vehicle control system 60 may actuate the actuator 28 to move the prop 30 (e.g., the prop that looks like the hand) to transition from the hidden configuration to the visible configuration.

[0044] In the visible configuration, the prop 30 may contact or come very close to contacting certain features of the ride vehicle 20. For example, as shown in FIG. 5, the prop 30 may contact the side wall of the ride vehicle 20. Thus, the movement of the prop 30 in coordination with the show effects 58 displayed on the display 68 may create the illusion of continuity and the passengers may perceive that the creature, as depicted by the display 68, is gripping the side wall of the ride vehicle 20. It should be noted that although the creature is described as gesturing toward a lateral side of the display 68, any suitable figure may be presented in the media as gesturing toward any suitable direction of the display 68, such as a top and/or a bottom side. Therefore, the show element 11 may be positioned in any suitable location to transition to the visible configuration in any suitable area (e.g., in synchronization with the media presented on the display 68).

[0045] In an embodiment, the display 68 may be used to display the creature, which may appear to be shaking (e.g., moving) the ride vehicle 20. The attraction control system 50 and/or the ride vehicle control system 60 may cause the actuator 28 to transition the prop 30 into the view of the passengers 90. Additionally or alternatively, the attraction control system 50 and/or the ride vehicle control system 60 may cause the ride vehicle 20 to move forward, backward, and/or side to side. In this manner, the attraction 12 may create the illusion of manipulation of the ride vehicle 20 by the creature on the display 68. Indeed, the attraction control system 50 and/or the ride vehicle control system 60 may cause the ride vehicle 20 to move in synchronization with and based on the show effect 58 displayed on the display 68. In this manner, the systems and methods described herein may provide the unique visual experience for the passengers 90 by enabling coordination of the show element 11 and the show effects 58 that cumulatively create a perception of interaction between the show elements 11 and the ride vehicle 20 via the show element 11 integrated with the ride vehicle 20.

[0046] While only certain features of the disclosure have been illustrated and described herein, many modifications and changes will occur to those skilled in the art. It is, therefore, to be understood that the appended claims are intended to cover all such modifications and changes as fall within the true spirit of the disclosure.

[0047] The techniques presented and claimed herein are referenced and applied to material objects and concrete examples of a practical nature that demonstrably improve the present technical field and, as such, are not abstract, intangible or purely theoretical. Further, if any claims appended to the end of this specification contain one or more elements designated as “means for (perform)ing (a function)...” or “step for (perform)ing (a function)...”, it is intended that such elements are to be interpreted under 35 U.S.C. 112(f). However, for any claims containing elements designated in any other manner, it is intended that such elements are not to be interpreted under 35 U.S.C. 112(f).

CLAIMS:

1. A ride system, comprising:
 - a ride vehicle;
 - a show element coupled to the ride vehicle, wherein the show element comprises an actuator coupled to a prop; and
 - a control system configured to:
 - generate one or more show effects for the ride system;
 - instruct the actuator to actuate the prop, wherein actuating the prop causes the prop to move from a hidden configuration to a visible configuration; and
 - coordinate display of the one or more show effects with the prop transitioning to the visible configuration.
2. The ride system of claim 1, comprising one or more sensors configured to detect a position of the one or more show effects, a position of the show element, or both, and provide sensor data indicative of the position of the one or more show effects, the position of the show element, or both, to the control system.
3. The ride system of claim 2, wherein the control system is configured to determine the show element is in an expected location.
4. The ride system of claim 2, wherein the one or more sensors comprise a positional sensor, a contact sensor, a motion sensor, an image sensor, or any combination thereof.
5. The ride system of claim 1, wherein the control system is configured to coordinate the display of the one or more show effects with the prop transitioning to the visible configuration based on a predetermined program.

6. The ride system of claim 1, wherein the ride vehicle comprises a display, and wherein the control system is configured to generate image data and transmit the image data to the display.
7. The ride system of claim 6, wherein:
the display is configured to display one or more images based on the image data;
and
the control system is configured to instruct actuation of the show element via the actuator based at least in part on the one or more images displayed on the display.
8. The ride system of claim 1, wherein the control system is located onboard the ride vehicle.
9. The ride system of claim 1, the control system is configured to coordinate the display of the one or more show effects and the prop transitioning to the visible configuration while the ride vehicle is moving, while the ride vehicle is stationary, or both.
10. The ride system of claim 1, wherein the control system is configured to instruct the actuator to actuate the prop from the visible configuration to the hidden configuration.
11. The ride system of claim 1, wherein the actuator is configured to actuate the prop up, down, forward, backward, outward, inward, or any combination thereof relative to a viewing area of the ride vehicle.
12. The ride system of claim 1, wherein the prop comprises an appendage of an animated figure.

13. The ride system of claim 1, wherein the show element is positioned on a top portion of the ride vehicle, a bottom portion of the ride vehicle, a side portion of the ride vehicle, or any combination thereof.

14. A tangible, non-transitory, computer-readable medium, comprising instructions that, when executed by a processor, are configured to cause the processor to:

generate a show effect;

instruct an actuator to actuate a prop, wherein actuating the prop causes the prop to move from a hidden configuration to a visible configuration based on the show effect; and

coordinate display of the show effect with the prop transitioning to the visible configuration.

15. The tangible, non-transitory, computer-readable medium of claim 14, wherein the instructions are configured to cause the processor to receive sensor data from one or more sensors.

16. The tangible, non-transitory, computer-readable medium of claim 15, wherein the instructions are configured to cause the processor to instruct the actuator to actuate the prop based on the sensor data.

17. The tangible, non-transitory, computer-readable medium of claim 14, wherein the instructions are configured to cause the processor to transmit image data to a display to cause display of one or more images.

18. The tangible, non-transitory, computer-readable medium of claim 17, wherein the instructions are configured to cause the processor to instruct the actuator to actuate the prop in coordination with the display of the one or more images.

19. A ride system, comprising:

a ride vehicle, comprising:

one or more show elements, the one or more show elements comprising one or more actuators coupled to one or more props; and

one or more displays; and

a control system comprising a processing system and a memory, the memory encoded with instructions configured to be executed by the processor to cause the attraction control system to:

generate one or more show effects for the ride system, wherein the one or more show effects comprise image data;

transmit the image data to the one or more displays to cause display of one or more images; and

actuate the one or more props via the one or more actuators in coordination with the display of the one or more images.

20. The ride system of claim 19, wherein the instructions are configured to be executed by the processor to cause the control system to coordinate the one or more images with actuation of the one or more props.