CLAIMS

1. An attraction system, comprising:

a show element comprising:

a first rigid body comprising a first surface coupled to a first tracker;

a second rigid body comprising a second surface coupled to a second tracker;

a connection coupling the first rigid body and the second rigid body to one another and configured to enable movement of the first rigid body relative to the second rigid body; and

a transition layer at the connection coupling the first rigid body and the second rigid body to one another, wherein the transition layer is configured to couple to respective end portions of the first rigid body and the second rigid body;

an image sensor configured to generate sensor data indicative of a first position of the first rigid body and a second position of the second rigid body; and

a projector configured to project first image data on the first rigid body and second image data on the second rigid body.

2. The attraction system of claim 1, wherein the transition layer comprises:

a first fastener configured to fixedly couple the transition layer to the first rigid body, such that the transition layer is flush with the first surface; and

a second fastener configured to fixedly couple the transition layer to the second rigid body, such that the transition layer is flush with the second surface.

3. The attraction system of claim 1, wherein the first surface and the second surface comprise fiberglass, plastic, metal, ceramic, composite material, or any combination thereof, and wherein the transition layer comprises a flexible material.

4. The attraction system of claim 1, wherein the first tracker is configured to emit or reflect light and the second tracker is configured to emit or reflect light.

5. The attraction system of claim 1, comprising a controller communicatively coupled to the image sensor and the projector and configured to:

determine the first position and the second position based on the sensor data from the image sensor; and

generate the first image data and the second image data based on the first position and the second position.

6. The attraction system of claim 5, wherein the controller is configured to:

determine respective changes in the first position and the second position over time based on the sensor data from the image sensor; and

adjust the first image data and the second image data based on the respective changes in the first position and the second position over time.

7. The attraction system of claim 1, wherein a first projection surface of the first surface and a second projection surface of the second surface comprises a textured surface or a sculpted surface.

8. A non-transitory, computer-readable medium, comprising instructions, wherein the instructions, when executed by processing circuitry, are configured to cause the processing circuitry to perform operations comprising:

receiving sensor data from an image sensor of an attraction system, wherein the sensor data indicates respective positions of a plurality of rigid bodies coupled together to form a show element of the attraction system;

receiving calibration data associated with a plurality of connections of the show element;

determining the respective positions of the plurality of rigid bodies of the show element based on the sensor data;

generating respective image data for the plurality of rigid bodies of the show element based on the respective positions and the calibration data, such that the respective image data for at least a portion of the plurality of rigid bodies accounts for an expected

behavior of a transition layer at a respective connection of the plurality of connections coupling the at least the portion of the plurality of rigid bodies together; and

instructing a projector of the attraction system to project the respective image data onto the plurality of rigid bodies of the show element.

9. The non-transitory, computer-readable medium of claim 8, wherein the instructions, when executed by the processing circuitry, are configured to cause the processing circuitry to determine the respective positions of the plurality of rigid bodies of the show element based on:

receiving additional calibration data, wherein the additional calibration data comprises respective geometries of the plurality of rigid bodies, respective relative locations of the plurality of rigid bodies, respective locations of a plurality of trackers relative to the plurality of rigid bodies, and a coordinate system for the attraction system.

10. The non-transitory, computer-readable medium of claim 8, wherein the instructions, when executed by the processing circuitry, are configured to cause the processing circuitry to generate the respective image data for the at least the portion of the plurality of rigid bodies by:

generating first image data for a first rigid body of the at least the portion of the plurality of rigid bodies based on the calibration data and a respective position of the first rigid body; and

generating second image data for a second rigid body of the at least the portion of the plurality of rigid bodies based on the calibration data and a respective position of the second rigid body, wherein the first image data and the second image data overlap at the respective connection between the first rigid body and the second rigid body.

11. The non-transitory, computer-readable medium of claim 10, wherein the instructions, when executed by the processing circuitry, are configured to cause the processing circuitry to perform operations comprising:

generating the first image data, the second image data, or both to account for the expected behavior comprising a fold that forms at the transition layer at the respective connection between the first rigid body and the second rigid body.

12. The non-transitory, computer-readable medium of claim 8, wherein the instructions, when executed by the processing circuitry, are configured to cause the processing circuitry to perform operations comprising:

determining respective changes in the respective positions of the plurality of rigid bodies of the show element over time based on the sensor data from the image sensor; and

adjusting the respective image data for the plurality of rigid bodies of the show element based on the respective changes in the respective positions of the plurality of rigid bodies of the show element over time.

13. The non-transitory, computer-readable medium of claim 12, wherein the instructions, when executed by the processing circuitry, are configured to cause the processing circuitry to perform operations comprising:

adjusting the respective image data for the plurality of rigid bodies of the show element based on the respective changes in the respective positions of the plurality of rigid bodies of the show element over time to provide an appearance of a cohesive element.

14. An attraction system, comprising:

a show element comprising:

a plurality of rigid bodies coupled at one or more connections, wherein a first connection of the one or more connections comprises:

a first fastener that movably couples a first frame of a first rigid body of the plurality of rigid bodies to a second frame of a second rigid body of the plurality of rigid bodies; and

a transition layer that surrounds the first fastener and respective end portions of the first frame and the second frame; and

a plurality of trackers, wherein each rigid body of the plurality of rigid bodies comprises at least one respective tracker of the plurality of trackers;

an image sensor configured to provide sensor data indicative of the plurality of trackers;

a projector configured to project image data on each rigid body of the plurality of rigid bodies; and

a controller coupled to the image sensor and the projector, wherein the controller is configured to:

determine a respective position of each rigid body of the plurality of rigid bodies based on the sensor data;

generate image data for each rigid body of the plurality of rigid bodies based on the respective position of each rigid body of the plurality of rigid bodies; and

instruct the projector to project the image data onto each rigid body of the plurality of rigid bodies.

15. The attraction system of claim 14, wherein each rigid body of the plurality of rigid bodies comprises:

a rigid frame; and

a surface coupled to the rigid frame and comprising a projection surface to receive the image data.

16. The attraction system of claim 14, comprising an actuator coupled to the show element and the controller, wherein the controller is configured to:

instruct the actuator to move the show element to change the respective position of each rigid body of the plurality of rigid bodies over time; and

generate the image data based on the respective position of each rigid body of the plurality of rigid bodies over time.

17. The attraction system of claim 14, wherein the controller is configured to:

access calibration data comprising a respective dimension of each rigid body of the plurality of rigid bodies within the show element; and

generate the image data based on the calibration data.

18. The attraction system of claim 14, wherein the controller is configured to determine the respective positions of each rigid body of the plurality of rigid bodies according to a coordinate system established for an environment of the attraction system.

19. The attraction system of claim 1, wherein the transition layer is configured to fold, extend, or both based on movement of the first rigid body, movement of the second rigid body, or both.

20. The attraction system of claim 1, wherein the first image data and the second image data overlap at the transition layer to provide an appearance of a unified image.