SUMMARY

[0005] In accordance with one or more aspects, a robot animation system for controlling a robot in real-time control is provided. The system can comprise a user computing device having a user interface, a user motion database communicatively coupled to the user computing device, a controller, a controller motion database communicatively coupled to the controller, and a target device communicatively coupled to the controller. The user computing device can be configured to, in response to receiving a sync indication from the user computing device, connect the user motion database and the controller motion database to share corresponding sets of motion instructions in real-time through bi-directional communication, wherein the sync indication also syncs each of a motion parameters module, a motion data parameters module, a visualization module, an interactivity module, and a control commands module between the user computing device and the controller allowing real-time interaction between the user computing device and the target device. The target device can be configured to implement the corresponding sets of motion instructions in real-time on the target device.

[0006] In accordance with another aspect, a method for controlling a robot in real-time is provided. The method can comprise receiving a sync indication from a user computing device at a user motion database, the user computing device including a user interface. The method can also comprise connecting the user motion database and a controller motion database to share corresponding sets of motion instructions in real-time through bi-directional communication. The method can further comprise implementing, on a target device via a controller, the corresponding sets of motion instructions shared as a result of the connecting in real-time, wherein the sync indication also syncs each of a motion parameters module, a motion data parameters module, a visualization module, an interactivity module, and a control commands

module between the user computing device and the controller allowing real-time interaction between the user computing device and the target device.

[0007] Further areas of applicability of the present disclosure will become apparent from the detailed description, the claims, and the drawings. The detailed description and specific examples are intended for purposes of illustration only and are not intended to limit the scope of the disclosure.

CLAIMS

What is claimed is:

1. A system comprising:

a user computing device including a user interface;

a user motion database communicatively coupled to the user computing device;

a controller;

a controller motion database communicatively coupled to the controller; and

a target device communicatively coupled to the controller,

the user computing device being configured to:

in response to receiving a sync indication from the user computing device, connect the user motion database and the controller motion database to share corresponding sets of motion instructions in real-time through bi-directional communication, wherein the sync indication also syncs each of a motion parameters module, a motion data parameters module, a visualization module, an interactivity module, and a control commands module between the user computing device and the controller allowing real-time interaction between the user computing device and the target device; and

the target device being configured to implement the corresponding sets of motion instructions in real-time on the target device.

2. The system of claim 1, wherein a figure is displayed on the user interface of the user computing device, the figure being configured to execute movements corresponding to the implemented corresponding sets of motion instructions in real-time.

3. The system of claim 1, wherein the user computing device is configured to receive user input and update the corresponding sets of motion instructions in real-time in response to the sync indication being transmitted from the user computing device.

4. The system of claim 1, wherein the user computing device is configured to:

obtain the sets of motion instructions from the user motion database, wherein the sets of motion instructions were previously uploaded and stored in the user motion database; and

generate and display a plurality of user-selectable user interface elements corresponding to each motion of the sets of motion instructions on the user interface of the user computing device.

5. The system of claim 1, wherein the target device is configured to implement the corresponding sets of motion instructions in real-time on the target device in response to receiving a play instruction from the user computing device.

6. The system of claim 5, wherein the corresponding sets of motion instructions are implemented on the target device by the user computing device transmitting a set of frames in a predetermined order to the target device.

7. The system of claim 2, wherein each motion of the sets of motion instructions includes (i) instructions to execute movements via the figure and (ii) instructions to execute movements on the target device.

8. The system of claim 1, wherein the target device includes a plurality of actuators to execute movements on the target device.

9. The system of claim 1, wherein the sync indication is transmitted in response to selection of a user-selectable interface element displayed on the user interface of the user computing device.

10. The system of claim 1, wherein the controller receives the sets of motion instructions from the controller motion database and the controller selects the sets of motion instructions associated with instructions to execute movements on the target device to transmit to the target device.

11. A method comprising:

receiving a sync indication from a user computing device at a user motion database, the user computing device including a user interface;

connecting the user motion database and a controller motion database to share corresponding sets of motion instructions in real-time through bi-directional communication; and

implementing, on a target device via a controller, the corresponding sets of motion instructions shared as a result of the connecting in real-time, wherein the sync indication also syncs each of a motion parameters module, a motion data parameters module, a visualization module, an interactivity module, and a control commands module between the user computing device and the controller allowing real-time interaction between the user computing device and the target device.

12. The method of claim 11, further comprising:

displaying a figure on the user interface of the user computing device; and

executing movements, using the figure, corresponding to the implemented corresponding sets of motion instructions in real-time.

13. The method of claim 11, further comprising receiving, at the user computing device, user input and updating the corresponding sets of motion instructions in real-time in response to the sync indication being transmitted from the user computing device.

14. The method of claim 11, further comprising:

obtaining the sets of motion instructions from the user motion database, wherein the sets of motion instructions were previously uploaded and stored in the user motion database; and

generating and displaying a plurality of user-selectable user interface elements corresponding to each motion of the sets of motion instructions on the user interface of the user computing device.

15. The method of claim 11, further comprising implementing the corresponding sets of motion instructions in real-time on the target device in response to receiving a play instruction from the user computing device.

16. The method of claim 15, wherein the corresponding sets of motion instructions are implemented on the target device by the user computing device transmitting a set of frames in a predetermined order to the target device.

17. The method of claim 12, wherein each motion of the sets of motion instructions includes (i) instructions to execute movements via the figure and (ii) instructions to execute movements on the target device.

18. The method of claim 11, wherein the target device includes a plurality of actuators to execute movements on the target device.

19. The method of claim 11, wherein the sync indication is transmitted in response to selection of a user-selectable interface element displayed on the user interface of the user computing device.

20. The method of claim 11, wherein the controller receives the sets of motion instructions from the controller motion database and the controller selects the sets of motion instructions associated with instructions to execute movements on the target device to transmit to the target device.