Claims

1. An apparatus for controlling a pointer on a screen of an electronic device, the apparatus comprising:

a receiver device communicable with the electronic device and comprising a receiving unit and a communication unit; and

a wireless input device comprising:

a sensing unit configured to detect movement of the wireless input device;

a position determination unit configured to obtain a determined current position of the wireless input device in a current time instance based on the detected movement;

a prediction unit configured to predict a first predicted current position of the wireless input device in the current time instance;

a comparison unit configured to determine a difference between the determined current position and the first predicted current position of the wireless input device, and further configured to determine if the difference is greater than a similarity threshold; and

a transmitting unit configured to transmit the determined current position of the wireless input device to the receiver device in response to determining that the difference is greater than the similarity threshold, and transmit neither the determined current position nor the first predicted current position when the difference is not greater than the similarity threshold;

wherein the receiving unit of the receiver device is configured to receive the determined current position of the wireless input device and the communication unit of the receiver device is configured to communicate the determined current position of the wireless input device to the electronic device to control the pointer on the screen of the electronic device, and communicate a second predicted current position of the wireless input device predicted by a predictor unit of the receiver device to the electronic device when the determined current position is not received from the wireless input device and a prediction of position of the wireless input device is successful.

2. The apparatus of claim 1, wherein the prediction unit of the wireless input device is configured to predict the first predicted current position of the wireless input device in the current time instance based on previous positions of the wireless input device determined by

the position determination unit in a plurality of time instances prior to the current time instance, and

wherein the prediction unit of the wireless input device is configured to:

generate parameters of a first prediction function based on the previous positions of the wireless input device determined by the position determination unit; and

predict the first predicted current position of the wireless input device in the current time instance using the first prediction function with the generated parameters.

3. The apparatus of claim 1, wherein the receiver device further comprises:

a data detection unit configured to determine if the determined current position of the wireless input device is received by the receiving unit from the wireless input device; and

the predictor unit configured to predict the second predicted current position of the wireless input device;

wherein in response to determining an absence of the receipt of the determined current position of the wireless input device, the communication unit of the receiver device is further configured to communicate the second predicted current position of the wireless input device to the electronic device to control the pointer on the screen of the electronic device.

4. The apparatus of claim 3, wherein the predictor unit of the receiver device is configured to predict the second predicted current position of the wireless input device in response to determining an absence of the receipt of the determined current position of the wireless input device.

5. The apparatus of claim 3, wherein the predictor unit of the receiver device is configured to predict the second predicted current position of the wireless input device based on previous positions of the wireless input device communicated to the electronic device in a plurality of time instances prior to the current time instance.

6. The apparatus of claim 5, wherein the predictor unit of the receiver device is configured to:

generate parameters of a second prediction function based on the previous positions of the wireless input device communicated to the electronic device; and

predict the second predicted current position of the wireless input device using the second prediction function with the generated parameters.

7. The apparatus of claim 5, wherein the prediction unit of the wireless input device is further configured to predict the first predicted current position of the wireless input device using a first prediction function;

wherein the predictor unit of the receiver device is configured to predict the second predicted current position of the wireless input device using a second prediction function; and

wherein the first prediction function and the second prediction function are same functions with variable parameters.

8. The apparatus of claim 7, wherein the first prediction function and the second prediction function are same polynomial equations.

9. The apparatus of claim 7, wherein the first prediction function and the second prediction function are same displacement equations, each displacement equation comprising a velocity parameter and an acceleration parameter, and

wherein the velocity parameter and the acceleration parameter for the first prediction function are determined based on previous positions of the wireless input device determined by the position determination unit in a plurality of time instances prior to the current time instance.

10. The apparatus of claim 9, wherein the velocity parameter and the acceleration parameter for the second prediction function are determined based on previous positions of the wireless input device communicated to the electronic device in a plurality of time instances prior to the current time instance.

11. The apparatus of claim 1, wherein the wireless input device further comprises an input memory unit configured to store each position of the wireless input device determined by the position determination unit; and

wherein the prediction unit of the wireless input device is further configured to use previously stored positions of the wireless input device from the input memory unit to predict the first predicted current position of the wireless input device, wherein the previously stored positions are stored in time instances prior to the current time instance.

12. The apparatus of claim 11, wherein the input memory unit is further configured to store each position of the wireless input device predicted by the prediction unit.

13. The apparatus of claim 3, wherein the receiver device further comprises a receiver memory unit configured to store each position of the wireless input device received by the receiving unit; and

wherein the predictor unit of the receiver device is further configured to use previously stored positions of the wireless input device from the receiver memory unit to predict the second predicted current position of the wireless input device, wherein the previously stored positions are stored in time instances prior to the current time instance.

14. The apparatus of claim 13, wherein the receiver memory unit is further configured to store each position of the wireless input device predicted by the predictor unit, and wherein the previously stored positions used to predict the second predicted current position of the wireless input device comprise previously predicted positions.

15. The apparatus of claim 1, wherein the prediction of position of the wireless input device (404) is successful when an average difference between predicted previous positions and determined previous positions at respective time instances is below a fit success threshold.

16. A wireless input device communicable with a receiver device, wherein the receiver device is communicable with an electronic device and wherein the wireless input device comprises:

a sensing unit configured to detect movement of the wireless input device;

a position determination unit configured to obtain a determined current position of the wireless input device in a current time instance based on the detected movement;

a prediction unit configured to predict a first predicted current position of the wireless input device in the current time instance;

a comparison unit configured to determine a difference between the determined current position and the first predicted current position of the wireless input device, and further configured to determine if the difference is greater than a similarity threshold; and

a transmitting unit configured to transmit the determined current position of the wireless input device to the receiver device in response to determining that the difference is greater than the similarity threshold, and transmit neither the determined current position nor

the first predicted current position when the difference is not greater than the similarity threshold,

wherein the receiver device (406) is configured to communicate the determined current position of the wireless input device (404) to the electronic device (402) to control the pointer on the screen of the electronic device (402), and communicate a second predicted current position of the wireless input device (404) predicted by a predictor unit (608) of the receiver device (406) to the electronic device (402) when the determined current position is not received from the wireless input device (404) and a prediction of position of the wireless input device (404) is successful.

17. The wireless input device of claim 16, wherein the prediction unit is configured to predict the first predicted current position of the wireless input device in the current time instance based on previous positions of the wireless input device determined by the position determination unit in a plurality of time instances prior to the current time instance.

18. The wireless input device of claim 17, wherein the prediction unit is configured to:

generate parameters of a first prediction function based on the previous positions of the wireless input device determined by the position determination unit; and

predict the first predicted current position of the wireless input device in the current time instance using the first prediction function with the generated parameters.

19. The wireless input device of claim 16, further comprising an input memory unit configured to store each position of the wireless input device determined by the position determination unit; and

wherein the prediction unit is further configured to use previously stored positions of the wireless input device from the input memory unit to predict the first predicted current position of the wireless input device, wherein the previously stored positions are stored in time instances prior to the current time instance.

20. The wireless input device of claim 19, wherein the input memory unit is further configured to store each position of the wireless input device predicted by the prediction unit.

21. The wireless input device of claim 16, wherein the prediction of position of the wireless input device (404) is successful when an average difference between predicted previous

positions and determined previous positions at respective time instances is below a fit success threshold.

22. A receiver device communicable with a wireless input device and an electronic device, wherein the receiver device comprises:

a receiving unit configured to receive a determined current position of the wireless input device from the wireless input device, wherein the wireless input device (404) is configured to transmit the determined current position when a difference between the determined current position and a first predicted current position of the wireless input device (404) predicted by the wireless input device (404) is greater than a similarity threshold, and transmit neither the determined current position nor the first predicted current position when the difference is not greater than the similarity threshold;

a communication unit configured to communicate the determined current position of the wireless input device to the electronic device;

a data detection unit configured to determine if the determined current position of the wireless input device is received by the receiving unit from the wireless input device; and

a predictor unit configured to predict a second predicted current position of the wireless input device;

wherein in response to determining an absence of the receipt of the determined current position of the wireless input device and a prediction of position of the wireless input device is successful, the communication unit is configured to communicate the second predicted current position of the wireless input device to the electronic device.

23. The receiver device of claim 22, wherein the predictor unit is configured to predict the second predicted current position of the wireless input device in response to determining an absence of the receipt of the determined current position of the wireless input device.

24. The receiver device of claim 22, wherein the predictor unit is configured to predict the second predicted current position of the wireless input device based on previous positions of the wireless input device communicated to the electronic device in a plurality of time instances prior to the current time instance.

25. The receiver device of claim 24, wherein the predictor unit is configured to:

generate parameters of a second prediction function based on the previous positions of the wireless input device communicated to the electronic device; and

predict the second predicted current position of the wireless input device using the second prediction function with the generated parameters.

26. The receiver device of claim 22, wherein the receiver device further comprises a receiver memory unit configured to store each position of the wireless input device received by the receiving unit; and

wherein the predictor unit of the receiver device is further configured to use previously stored positions of the wireless input device from the receiver memory unit to predict the second predicted current position of the wireless input device, wherein the previously stored positions are stored in time instances prior to the current time instance.

27. The receiver device of claim 26, wherein the receiver memory unit is further configured to store each position of the wireless input device predicted by the predictor unit, and wherein the previously stored positions used to predict the second predicted current position of the wireless input device comprise previously predicted positions.