CLAIMS

1. A system for facilitating a data communication, the system comprising:

a human interface device;

a receiver device couplable to a host device and communicatively connectable to the human interface device,

wherein the human interface device is configured to generate input data for a user input on the human interface device, generate control information associated with the input data, and transmit the input data and the control information to the receiver device, wherein the control information indicates whether an acknowledgement of receipt of the input data is required, and

wherein the receiver device is configured to receive the input data and the control information from the human interface device and transmit the input data to the host device, and the receiver device is further configured to transmit an acknowledgement packet to the human interface device when the control information received from the human interface device indicates that an acknowledgement of receipt of the input data is required, and perform a background task when the control information received from the human interface device indicates that an acknowledgement of receipt of the input data is not required.

2. The system according to claim 1, wherein the human interface device is configured to transmit the input data and the control information to the receiver device at a predetermined time interval.

3. The system according to claim 1 or claim 2, wherein the receiver device is configured to receive control data for controlling the human interface device from the host device, and

wherein when the control information received from the human interface device indicates that an acknowledgement of receipt of the input data is required, the receiver device is configured to transmit the control data with the acknowledgement packet to the human interface device.

4. The system according to claim 2, wherein the receiver device is configured to receive control data for controlling the human interface device from the host device, and

wherein if a size of the control data exceeds a predetermined size, the receiver device is configured to inform the human interface device of the control data at the predetermined time interval, and

wherein the human interface device is configured to extend the predetermined time interval, so as to enable the receiver device to transmit the control data exceeding the predetermined size to the human interface device during the extended time interval,

preferably, wherein the human interface device is further configured to return from the extended time interval to the predetermined time interval, after receiving the control data exceeding the predetermined size.

5. The system according to claim 3, wherein the receiver device is configured to split the control data into a plurality of groups of the control data, and sequentially transmit each group of the plurality of groups of the control data to the human interface device,

preferably, wherein the human interface device includes a plurality of light sources, and each light source of the plurality of light sources is capable of selectively producing a plurality of lighting colours, and

wherein the control data includes data for controlling the each light source to produce at least one predetermined lighting colour among the plurality of lighting colours.

6. The system according to any of claims 1 to 5, wherein when the control information received from the human interface device indicates that an acknowledgement of receipt of the input data is not required, the receiver device is configured to perform one of scanning one or more available channels and broadcasting a signal about an identity of the receiver device.

7. The system according to claim 6, wherein the receiver device is configured to perform scanning the one or more available channels in a vicinity of the receiver device, detect radio energy of the one or more available channels, compute an average of the detected radio energy, and select a channel based on the computed average.

8. The system according to claim 6 further comprising another receiver device,

wherein the another receiver device is configured to detect the receiver device by the broadcasted signal, and transmit a command for disconnecting the receiver device from the human interface device to the receiver device, and

wherein the receiver device is configured to receive the command and disconnect from the human interface device,

preferably, wherein after the receiver device disconnects from the human interface device, the another receiver device is configured to establish a new wireless connection with the human interface device.

9. The system according to claim 6 further comprising another human interface device,

wherein the another human interface device is configured to detect the receiver device by the broadcasted signal, and transmit a command for a request for a connection to the receiver device, and

wherein the receiver device is configured to receive the command and disconnect from the human interface device,

preferably, wherein after the receiver device disconnects from the human interface device, the receiver device is configured to establish a new wireless connection with the another human interface device.

10. The system according to any of claims 1 to 9, wherein when the control information received from the human interface device indicates that an acknowledgement of receipt of the input data is not required, the human interface device is configured to operate in a power saving mode.

11. The system according to claim 2, wherein the predetermined time interval is 125 μs and consequently a polling rate of the human interface device is 8000 Hz.

12. The system according to claim 2, wherein first to N-th predetermined time intervals are combined as a combined predetermined time interval,

wherein at the first to (N-1)-th predetermined time intervals, first to (N-1)-th control information associated with first to (N-1)-th input data indicate that an acknowledgement of receipt of the first to (N-1)-th input data is not required from the receiver, and

wherein at the N-th predetermined time interval, the receiver device is configured to transmit an acknowledgement packet to the human interface device when N-th control information associated with N-th input data indicates that an acknowledgement of receipt of the N-th input data is required, and perform a background task when the N-th control information received from the human interface device indicates that an acknowledgement of receipt of the N-th input data is not required.

13. The system according to claim 12, wherein for each k, $1 \leq k \leq N$, the human interface device is configured to transmit the first to k-th input data and the first to k-th control information associated with the first to k-th input data to the receiver device at the k-th predetermined time interval, and

wherein the receiver device is configured to transmit the k-th input data to the host device at the k-th predetermined time interval, or wherein the receiver device is configured to transmit the first to k-th input data to the host device at the N-th predetermined time interval.

14. The system according to claim 12, wherein N is equal to 2 or 4 or any even integer.

15. A method for facilitating a data communication, the method comprising:

generating, by a human interface device, input data for a user input on the human interface device;

generating, by the human interface device, control information associated with the input data, wherein the control information indicates whether an acknowledgement of receipt of the input data is required;

transmitting the input data and the control information from the human interface device to a receiver device, wherein the receiver device is communicatively connected to the human interface device; and

transmitting an acknowledgement packet from the receiver device to the human interface device, when the control information received from the human interface device indicates that an acknowledgement of receipt of the input data is required, and performing, by the receiver device, a background task, when the control information received from the human interface device indicates that an acknowledgement of receipt of the input data is not required.

16. The method according to claim 15, wherein transmitting the input data and the control information from the human interface device to the receiver device comprises:

transmitting the input data and the control information to the receiver device at a predetermined time interval.

17. The method according to claim 15 or claim 16, further comprising:

receiving, by the receiver device, control data for controlling the human interface device from the host device, and

transmitting the control data with the acknowledgement packet to the human interface device, wherein when the control information received from the human interface device indicates that an acknowledgement of receipt of the input data is required.

18. The method according to claim 16, further comprising:

receiving, by the receiver device, control data for controlling the human interface device from the host device;

if a size of the control data exceeds a predetermined size, informing, by the receiver device, the human interface device of the control data at the predetermined time interval; and

extending, by the human interface device, the predetermined time interval, so as to enable the receiver device to transmit the control data exceeding the predetermined size to the human interface device during the extended time interval,

preferably, further comprising:

returning, by the human interface device, from the extended time interval to the predetermined time interval, after receiving the control data exceeding the predetermined size.

19. The method according to claim 17, further comprising:

splitting, by the receiver device, the control data into a plurality of groups of the control data; and

sequentially transmitting each group of the plurality of groups of the control data from the receiver device to the human interface device,

preferably, further comprising:

if the control information received from the human interface device indicates that an acknowledgement of receipt of the input data is not required, performing, by the receiver device, one of scanning one or more available channels and broadcasting a signal about an identity of the receiver device.

20. The method according to claim 16, wherein first to N-th predetermined time intervals are combined as a combined predetermined time interval, and

wherein at the first to (N-1)-th predetermined time intervals, first to (N-1)-th control information associated with first to (N-1)-th input data indicate that an acknowledgement of receipt of the first to (N-1)-th input data is not required from the receiver,

the method further comprising:

at the N-th predetermined time interval, transmitting, by the receiver device, an acknowledgement packet to the human interface device when N-th control information associated with N-th input data indicates that an acknowledgement of receipt of the N-th input data is required, and performing a background task when the N-th control information received from the human interface device indicates that an acknowledgement of receipt of the N-th input data is not required.