Claims

1. A system for monitoring night activities of a person comprising a plurality of pressure sensors, a light sensor, a plurality of lightings, a data communications system, and a server communicatively connected to the data communications system, the data communications system having a processor, a memory and instructions stored on the memory executable by the processor to:

receive a signal from a first of the plurality of pressure sensor;

obtain a luminance of the surrounding from the light sensor in response to receiving the signal from the first of the plurality of pressure sensor;

determine whether the luminance of the surrounding is below a predetermined threshold and a current time is within the predetermined time period;

trigger a powering up of the system in response to the luminance of the surrounding being below the predetermined threshold and the current time is within the predetermined time period wherein each of the plurality of pressure sensors is electronically configured to consume zero electrical power when a mat is not stepped on.

2. The system according to claim 1 wherein the data communications system further comprises instructions to:

transmit a first request comprising the identity (ID) of the data communications system and the ID of the first of the plurality of pressure sensor to the server.

3. The system according to claim 2 wherein the server comprises a processor, a memory and instructions stored on the memory executable by the processor to:

receive the first request from the data communications system;

retrieve a data structure associated to the ID of the data communications system;

log a time stamp of the activity of the ID of the first of the plurality of pressure sensor on an activity log associated to the ID of the data communications system;

retrieve ID of lightings being tagged to the ID of the first of the plurality of pressure sensor; and

transmit a first response comprising the ID of lightings being tagged to the ID of the first of the plurality of pressure sensor to the data communications system, and wherein a location of the ID of the first of the plurality of pressure sensor is indicated as bedside.

4. The system according to claim 3 wherein the data communications system further comprises instructions to:

receive the first response from the server;

transmit a signal to the ID of lightings contained in the first response.

5. The system according to claim 4 wherein the data communications system further comprises instructions to:

receive a signal from a second of the plurality of pressure sensor;

transmit a second request comprising the identity (ID) of the data communications system and the ID of the second of the plurality of pressure sensor to the server.

6. The system according to claim 5 wherein the server further comprises instructions to:

receive the second request from the data communications system;

retrieve a data structure associated to the ID of the data communications system;

log a time stamp of the activity of the ID of the second of the plurality of pressure sensor on an activity log associated to the ID of the data communications system;

retrieve ID of lightings being tagged to the ID of the second of the plurality of pressure sensor; and

transmit a response comprising the ID of lightings being tagged to the ID of the second of the plurality of pressure sensor to the data communications system wherein the location of the ID of the second of the plurality of pressure sensor is indicated as toilet entrance.

7. The system according to claim 6 wherein the server further comprises instructions to:

determine whether the second of the plurality of pressure sensor is indicated as toilet entrance;

start a timer in response to the second of the plurality of pressure sensor being indicated as toilet entrance and wait for a subsequent request from the same data communications system; and

transmit an alert to a designated care giver, if no subsequent request is received from the same data communications system after a predetermined period of time.

8. The system according to anyone of claims 3-7 wherein the server further comprises instructions to:

receive a next request from the data communications system;

retrieve a data structure associated to the ID of the data communications system;

log the time stamp of the activity of the ID of the plurality of pressure sensor contained in the next request;

determine whether the ID of the plurality of pressure sensor contained in the next request is identical to the ID of the first plurality of pressure sensor;

start a timer in response to determining the ID of the plurality of pressure sensor contained in the next request is identical to the ID of the first plurality of pressure sensor and wait for a subsequent request from the same data communications system; and

transmit a power down message response to the data communications system in response to the time period being more than a predetermined.

9. The system according to claim 8 wherein the data communications system further comprises instructions to:

receive the power down message response from the server;

trigger a powering down of the system in response to receiving the power down message from the server.

10. The system according to anyone of claims 3-9 wherein the server further comprises instructions to:

analyse details in the activity log for anomaly.

11. The system according to claim 10 wherein the instruction to analyse details in the activity log for anomaly comprises instructions on the memory of the server to:

determine number of times the user wakes up by the number of times the system is being powered up;

determine whether the user wakes up in either a first half of the night or second half of the sleep based on the time stamp in which the system is powered up;

determine a duration taken in the toilet for each visit based on the time stamp of a first entry and a subsequent entry for the ID of first of the plurality of pressure sensor;

determine a duration taken in a kitchen based on the time stamp of a first entry and a subsequent entry for the ID of a third plurality of pressure sensor wherein the location of the ID of the third of the plurality of pressure sensor is indicated as kitchen entrance;

determine a duration taken in a living room based on the time stamp of a first entry and a subsequent entry for the ID of a fourth plurality of pressure sensor wherein the location of the ID of the fourth of the plurality of pressure sensor is indicated as living room entrance;

determine a duration taken other than on the bed per visit based on the time stamp of a first entry and a subsequent entry for the ID of the first plurality of pressure sensor; and

determine number of hours of rest by aggregating the duration between each event where time stamp at which the user goes to the bed till the time stamp at which the user leaves the bed.

12. The system according to claim 11 wherein the instruction to analyse details in the activity log for anomaly comprises instructions on the memory of the server to:

determine an abnormal activity where the user frequents the toilets in the first half of a sleeping time.

13. The system according to claim 11 wherein the instruction to analyse details in the activity log for anomaly comprises instructions on the memory of the server to:

determine an abnormal activity where the user has less than 8 hours of sleep each night and has been awake for more than 2 hours for 4 consecutive nights.

14. The system according to claim 11 wherein the instruction to analyse details in the activity log for anomaly comprises instructions on the memory of the server to:

determine an abnormal activity where the user visits the toilet more than twice a night and each visit is more than 30 minutes.

15. A method for monitoring night activities of a person comprising a plurality of pressure sensors, a light sensor, a plurality of lightings, a data communications system, and a server communicatively connected to the data communications system, the method comprising the data communications system to:

receive a signal from a first of the plurality of pressure sensor;

obtain a luminance of the surrounding from the light sensor in response to receiving the signal from the first of the plurality of pressure sensor;

determine whether the luminance of the surrounding is below a predetermined threshold and a current time is within the predetermined time period;

trigger a powering up of the system in response to the luminance of the surrounding being below the predetermined threshold and the current time is within the predetermined time period wherein each of the plurality of pressure sensors is electronically configured to consume zero electrical power when a mat is not stepped on.

16. The method according to claim 15 further comprising the data communications system to:

transmit a first request comprising the identity (ID) of the data communications system and the ID of the first of the plurality of pressure sensor to the server.

17. The method according to claim 16 further comprising the server to:

receive the first request from the data communications system;

retrieve a data structure associated to the ID of the data communications system;

log a time stamp of the activity of the ID of the first of the plurality of pressure sensor on an activity log associated to the ID of the data communications system;

retrieve ID of lightings being tagged to the ID of the first of the plurality of pressure sensor; and

transmit a first response comprising the ID of lightings being tagged to the ID of the first of the plurality of pressure sensor to the data communications system, and wherein a location of the ID of the first of the plurality of pressure sensor is indicated as bedside.

18. The method according to claim 17 further comprising the data communications system to:

receive the first response from the server;

transmit a signal to the ID of lightings contained in the first response.

19. The method according to claim 18 further comprising the data communications system to:

receive a signal from a second of the plurality of pressure sensor;

transmit a second request comprising the identity (ID) of the data communications system and the ID of the second of the plurality of pressure sensor to the server.

20. The method according to claim 19 further comprising the server to:

receive the second request from the data communications system;

retrieve a data structure associated to the ID of the data communications system;

log a time stamp of the activity of the ID of the second of the plurality of pressure sensor on an activity log associated to the ID of the data communications system;

retrieve ID of lightings being tagged to the ID of the second of the plurality of pressure sensor; and

transmit a response comprising the ID of lightings being tagged to the ID of the second of the plurality of pressure sensor to the data communications system wherein the location of the ID of the second of the plurality of pressure sensor is indicated as toilet entrance.

21. The method according to claim 20 further comprising the server to:

determine whether the second of the plurality of pressure sensor is indicated as toilet entrance;

start a timer in response to the second of the plurality of pressure sensor being indicated as toilet entrance and wait for a subsequent request from the same data communications system; and

transmit an alert to a designated care giver, if no subsequent request is received from the same data communications system after a predetermined period of time.

22. The method according to anyone of claims 17-21 further comprising the server to:

receive a next request from the data communications system;

retrieve a data structure associated to the ID of the data communications system;

log the time stamp of the activity of the ID of the plurality of pressure sensor contained in the next request;

determine whether the ID of the plurality of pressure sensor contained in the next request is identical to the ID of the first plurality of pressure sensor;

start a timer in response to determining the ID of the plurality of pressure sensor contained in the next request is identical to the ID of the first plurality of pressure sensor and wait for a subsequent request from the same data communications system; and

transmit a power down message response to the data communications system in response to the time period being more than a predetermined.

23. The method according to claim 22 further comprising the data communications system to:

receive the power down message response from the server;

trigger a powering down of the system in response to receiving the power down message from the server.

24. The method according to anyone of claims 17-23 further comprising the server to:

analyse details in the activity log for anomaly.

25. The method according to claim 24 wherein the step to analyse details in the activity log for anomaly comprises the server to:

determine number of times the user wakes up by the number of times the system is being powered up;

determine whether the user wakes up in either a first half of the night or second half of the sleep based on the time stamp in which the system is powered up;

determine a duration taken in the toilet for each visit based on the time stamp of a first entry and a subsequent entry for the ID of first of the plurality of pressure sensor;

determine a duration taken in a kitchen based on the time stamp of a first entry and a subsequent entry for the ID of a third plurality of pressure sensor wherein the location of the ID of the third of the plurality of pressure sensor is indicated as kitchen entrance;

determine a duration taken in a living room based on the time stamp of a first entry and a subsequent entry for the ID of a fourth plurality of pressure sensor wherein the location of the ID of the fourth of the plurality of pressure sensor is indicated as living room entrance;

determine a duration taken other than on the bed per visit based on the time stamp of a first entry and a subsequent entry for the ID of the first plurality of pressure sensor; and

determine number of hours of rest by aggregating the duration between each event where time stamp at which the user goes to the bed till the time stamp at which the user leaves the bed.

26. The system according to claim 25 wherein the step to analyse details in the activity log for anomaly comprises the server to:

determine an abnormal activity where the user frequents the toilets in the first half of a sleeping time.

27. The system according to claim 25 wherein the step to analyse details in the activity log for anomaly comprises the server to:

determine an abnormal activity where the user has less than 8 hours of sleep each night and has been awake for more than 2 hours for 4 consecutive nights.

28. The system according to claim 25 wherein the step to analyse details in the activity log for anomaly comprises the server to:

determine an abnormal activity where the user visits the toilet more than twice a night and each visit is more than 30 minutes.