CLAIMS

1. A method comprising:

measuring one or more physiological signals, the one or more physiological signals indicative of one or more physiological parameters of a user;

determining whether at least one parameter of the one or more physiological signals meets a criteria threshold;

in accordance with a determination that the at least one parameter meets the criteria threshold increasing an occurrence value;

in accordance with the at least one parameter not meeting the criteria threshold, determining whether an amount of time has elapsed since the at least one parameter of the one or more physiological signals not meeting the criteria threshold;

in accordance with the amount of time elapsing, resetting a sampling procedure;

determining whether the occurrence value meets an occurrence threshold; and

in accordance with the determination that the occurrence value meets the occurrence threshold, registering an instance.

2. The method of claim 1, wherein:

the amount of time is a first amount of time; and

the method further comprises:

in accordance with the determination that the at least one parameter of the one or more physiological signals meets the criteria threshold, waiting a second amount of time; and

measuring one or more subsequent physiological signals.

3. The method of claim 2, further comprising:

measuring motion information;

determining whether the motion information meets a motion threshold; and

in accordance with the determination that the motion information meets the motion threshold, delaying the measurement of the one or more subsequent physiological signals.

4. The method of claim 2, further comprising:

in accordance with the at least one parameter of the one or more physiological signals not meeting the criteria threshold, waiting a third amount of time, wherein the third amount of time is less than the second amount of time.

5. The method of claim 2, further comprising:

in accordance with the first amount of time not elapsing:

measuring motion information;

determining whether the motion information meets a motion threshold; and

in accordance with the determination that the motion information does not meet the motion threshold, delaying the measurement of the one or more subsequent physiological signals.

6. The method of claim 1, wherein registering an instance includes one or more of providing a notification to the user and storing associated information.

7. The method of claim 6, wherein a graphical user interface is located on a first device, the method further comprising:

sending at least a portion of the measured one or more physiological signals to a second device, separate and distinct from the first device; and

displaying the notification on the graphical user interface.

8. The method of claim 1, wherein the occurrence threshold is based on one or more of a sampling interval and characteristics of the user associated with the one or more physiological signals.

9. The method of claim 1, wherein the occurrence threshold is based on an average time between adjacent qualifying events, wherein the adjacent qualifying events are associated with the increase in the occurrence value.

10. The method of claim 1, further comprising:

in accordance with the at least one parameter not meeting the criteria threshold, increasing a non-occurrence value;

determining whether the non-occurrence value meets a non-occurrence threshold; and

in accordance with the determination that the non-occurrence value meets the non-occurrence threshold, resetting the sampling procedure.

11. The method of claim 1, wherein the one or more physiological signals are PPG signals.

12. The method of claim 1, wherein the increase in the occurrence value further is in accordance with a confidence value meeting a confidence value threshold.

13. A device comprising:

one or more PPG sensor units including:

at least one light source configured to emit light, and

at least one light detector configured to detect a portion of a reflection of the emitted light and configured to generate one or more physiological signals indicative of the detected portion of the reflection of the emitted light;

a display configured to display a graphical user interface; and

logic configured to:

receive the one or more physiological signals from one or more physiological signal measurements,

determine whether at least one parameter of the one or more physiological signals meets a criteria threshold,

in accordance with a determination that the at least one parameter meets the criteria threshold, increase an occurrence value,

in accordance with the at least one parameter not meeting the criteria threshold, determining whether an amount of time has elapsed since the at least one parameter of the one or more physiological signals not meeting the criteria threshold,

in accordance with the amount of time elapsing, resetting a sampling procedure,

determine whether the occurrence value meets an occurrence threshold, and

in accordance with the determination that the occurrence value meets the occurrence threshold, display a notification on the graphical user interface.

14. The device of claim 13, wherein:

the amount of time is a first amount of time;

the device further comprises a motion sensor configured to measure motion information; and

the logic is further configured to:

determine whether the motion information meets a motion threshold, and

in accordance with the determination that the at least one parameter of the one or more physiological signals meets the criteria threshold, wait a second amount of time,

measure one or more subsequent physiological signals, and

in accordance with the determination that the motion information meets the motion threshold, delay the measurement of the one or more subsequent physiological signals.

15. The device of claim 13, wherein the device is capable of switching between different operating modes of at least one of the one or more PPG sensor units.

16. The device of claim 15, wherein at least one of the one or more PPG sensor units is configured to:

operate with a first set of operating conditions, and

switch to operating with a second set of operating conditions after detecting a first instance, the first instance being a first determination that the occurrence value meets the occurrence threshold.

17. The device of claim 13, wherein at least one light source is configured to operate in green wavelengths and at least another light source is configured to operate in infrared wavelengths.

18. The device of claim 13, further comprising:

a transceiver configured to transmit at least a portion of the measured one or more physiological signals to a second device, separate and distinct from the device.

19. A method for detecting irregularities in a heart rate signal using a device, the method comprising:

measuring one or more heartbeats;

for at least one of the one or more measured heartbeats:

determining whether an intensity, a beat-to-beat timing of the heart rate signal, or both meets a criteria threshold;

in accordance with a determination that the intensity, the beat-to-beat timing, or both meet the criteria threshold, increasing an occurrence value;

in accordance with the intensity, the beat-to-beat timing, or both not meeting the criteria threshold, determining whether an amount of time has elapsed since the intensity, the beat-to-beat timing, or both not meeting the criteria threshold;

in accordance with the amount of time elapsing, resetting a sampling procedure;

determining whether the occurrence value is equal to the occurrence threshold; and

in accordance with the determination that the occurrence value meets the occurrence threshold, displaying a notification on a graphical user interface.

20. The method of claim 19, wherein the intensity meets the criteria threshold, and wherein the determination of the occurrence value is within a sampling interval, the method further comprising:

determining whether the sampling interval is greater than or equal to a time threshold; and

displaying the notification when the sampling interval is greater than or equal to the time threshold.