CLAIMS

What is claimed is:

1. An electronic device, wherein the electronic device includes a plurality of components collectively configured to treat one or more biological fluids, the device comprising:

a first group of components, wherein the first group of components comprises: one or more components configured to receive one or more inputs from a user of the device, the one or more components comprising:

a display configured to provide visual cues to the user of the device and configured to accept one or more inputs, and

a scanner configured to collect identifying information associated with a biological fluid being treated;

a first controller communicatively coupled to the first group of components and configured to operate the first group of components using one or more commands formatted using a first communications protocol;

a second group of components, wherein the second group of components comprises:

one or more platforms, wherein each platform of the one or more platforms is configured to carry a biological fluid of the one or more biological fluids;

one or more light engines, wherein each light engine is configured to illuminate a biological fluid of the one or more biological fluids; and

a second controller communicatively coupled to the second group of components and communicatively coupled to the first controller, wherein the second controller is configured to coordinate one or more operations involving the second group of components;

wherein the second controller communicates with the first controller and the second group of components using a second communications protocol, wherein the second communications protocol is configured such that the second group of components operate in response to one or commands from the second controller using the second communications protocol.

2. The device of claim 1, wherein the second group of components are configured to operate only in response to one or more commands transmitted from the second controller using the second communications protocol.

3. The device of claim 1 or claim 2, wherein a message transmitted in the second communications protocol includes information about the component that generated the message.

4. The device of any one of claims 1-3, wherein the first group of components include one or more components configured to allow an external user to interface with the device.

5. The device of any one of claims 1-4, wherein the display is a touchscreen display configured to accept one or more touch inputs from the user of the device.

6. The device of any one of claims 1-5, wherein the second group of components further includes one or more agitators, wherein each agitator is configured to agitate a biological fluid of the one or more biological fluids so as to distribute the biological fluid within a container that is disposed on a platform of the one or more platforms of the device.

7. The device of any one of claims 1-6, comprising one or more treatment chambers configured to receive a biological fluid of the one or more biological fluids, and wherein each platform of the one or more platforms are configured to be positioned in a treatment chamber of the one or more treatment chambers.

8. The device of any one of claims 1-7, wherein the second group of components further comprise one or more sensors configured to detect an operating condition of the device or a property of the biological fluid.

9. The device of any one of claims 1-8, wherein the one or more light engines includes one or more arrays of light sources positioned to illuminate the biological fluid and wherein the one or more arrays of light sources are configured to emit light in an ultraviolet light spectrum.

10. The device of claim 9, wherein the one or more arrays of light sources each comprise a first light source channel configured to emit ultraviolet light with a first peak wavelength from about 315 nm to about 350 nm.

11. The device of claim 9 or claim 10, wherein the one or more arrays of light sources comprise one or more light sources each of which emits light having a full-width half-maximum (FWHM) spectral bandwidth of less than 20 nanometers.

12. The device of any one of claims 9-11, wherein the one or more arrays of light sources comprise one or more light sources, and wherein the one or more light sources are light emitting diodes (LEDs).

13. The device of any one of claims 1-12, wherein the one or more light engines further comprise one or more sensors configured to detect light energy from the one or more arrays of light sources.

14. The device of any one of claims 8-13, wherein the second controller is configured to turn one or more of the second group of components on or off based on one or more signals transmitted by the one or more sensors.

15. The device of any one of claims 7-14, comprising:

a first treatment chamber configured to receive a first biological fluid;

a second treatment chamber configured to receive a second biological fluid:

a first platform configured to carry the first biological fluid and to be positioned in the first treatment chamber;

a second platform configured to carry the second biological fluid and to be positioned in the second treatment chamber; and

a first array of light sources positioned to illuminate the first biological fluid in the first treatment chamber and a second array of light sources positioned to illuminate the second biological fluid in the second treatment chamber.

16. The device of any one of claims 1-15, wherein the device is configured to receive one or more inputs from a user of the device, and the device is configured to:

transmit one or more commands using the first communications protocol to the first controller, wherein the one or more commands are configured to initiate a treatment process on a biological fluid of the one or more biological fluids;

at the first controller, convert the one or more commands in the first communications protocol into one or more commands in the second communications protocol and transmit the one or more commands in the second communications protocol to the second controller; and

at the second controller, convert the received one or more commands in the second communications protocol into one or more commands to control one or more components of the second group of components and transmit the one or more commands to the one or more components of the second group of components, wherein the one or more commands to control the one or more components of the second group of components are configured to cause the device to treat a biological fluid of the one or more biological fluids.

17. The device of any one of claims 1-16, wherein treating the one or more biological fluids comprises illuminating the biological fluids for a duration and at an intensity sufficient to inactivate a pathogen in the biological fluids.

18. A method for treating one or more biological fluids at an electronic device, the method comprising:

receiving one or more inputs from a user of the device;

transmitting one or more commands using a first communications protocol to a first controller of the device, wherein the one or more commands are configured to initiate a treatment process on biological fluid of the one or more biological fluids, and wherein the first controller is communicatively coupled to a first group of components device and configured to operate the first

group of components using one or more commands formatted using the first communications protocol;

wherein the first group of components comprises:

a display configured to provide visual cues to the user of the device and configured to accept one or more inputs, and

a scanner configured to collect identifying information associated with a biological fluid being treated;

at the first controller, converting the one or more commands in the first communications protocol into one or more commands in a second communications protocol and transmitting the one or more commands in the second communications protocol to a second controller of the device; and

at the second controller, converting the received one or more commands in the second communications protocol into one or more commands to control one or more components of a second group of components of the device and transmitting the one or more commands to one or more components of the second group of components, wherein the one or more commands to control the one or more components of the second group of components are configured to cause the device to treat a biological fluid of the one or more biological fluids,

wherein the second group of components comprises one or more light engines, wherein each light engine is configured to illuminate a biological fluid of the one or more biological fluids.

19. The method of claim 18, wherein the second group of components comprises:

one or more platforms, wherein each platform of the one or more platforms is configured to carry a biological fluid of the one or more biological fluids.

20. The method of claim 18 or claim 19, wherein the second group of components are configured to operate only in response to one or more commands transmitted from the second controller using the second communications protocol.

21. The method of any one of claims 18-20, wherein a message transmitted in the second communications protocol includes information about the component that generated the message.

22. The method of any one of claims 18-21, wherein the first group of components include one or more components configured to allow an external user to interface with the device.

23. The method of any one of claims 18-22, wherein the display is a touchscreen display configured to accept one or more touch inputs from the user of the device.

24. The method of any one of claims 18-23, wherein the second group of components further includes one or more agitators, wherein each agitator is configured to agitate a biological fluid of the one or more biological fluids so as to distribute the biological fluid within a container that is disposed on a platform of the one or more platforms of the device.

25. The method of any one of claims 18-24, wherein the electronic device comprises one or more treatment chambers configured to receive a biological fluid of the one or more biological fluids, and wherein each platform of the one or more platforms are configured to be positioned in a treatment chamber of the one or more treatment chambers.

26. The method of any one of claims 18-25, wherein the second group of components further comprise one or more sensors configured to an operating condition of the device or a property of the biological fluid.

27. The method of any of claims 18-26, wherein the one or more light engines includes one or more arrays of light sources positioned to illuminate a biological fluid of the one or more biological fluids and wherein the one or more arrays of light sources are configured to emit light in an ultraviolet light spectrum.

28. The method of claim 27, wherein the one or more arrays of light sources each comprise a first light source channel configured to emit ultraviolet light with a first peak wavelength from about 315 nm to about 350 nm.

29. The method of claim 27 or claim 28, wherein the one or more arrays of light sources comprise one or more light sources each of which emits light having a full-width half-maximum (FWHM) spectral bandwidth of less than 20 nanometers.

30. The method of any one of claims 27-29, wherein the one or more arrays of light sources comprise one or more light sources, and wherein the one or more light sources are light emitting diodes (LEDs).

31. The method of any one of claims 18-30, wherein the one or more light engines further comprise one or more sensors configured to detect light energy from the one or more arrays of light sources.

32. The method of any one of claims 26-31, wherein the second controller is configured to turn one or more of the second group of components on or off based on one or more signals transmitted by the one or more sensors.

33. The method of any one of claims 18-32, wherein the electronic device comprises:

a first treatment chamber configured to receive a first biological fluid;

a second treatment chamber configured to receive a second biological fluid;

a first platform configured to carry the first biological fluid and to be positioned in the first treatment chamber;

a second platform configured to carry the second biological fluid and to be positioned in the second treatment chamber; and

a first array of light sources positioned to illuminate the first biological fluid in the first treatment chamber and a second array of light sources positioned to illuminate the second biological fluid in the second treatment chamber.

34. The method of any one of claims 18-33, wherein treating the one or more biological fluids comprises illuminating the biological fluids for a duration and at an intensity sufficient to inactivate a pathogen in the biological fluids.

35. A computer readable storage medium storing one or more programs, the one or more programs comprising instructions, which when executed by an electronic device configured to treat one or more biological fluids, cause the device to:

receive one or more inputs from a user of the device;

transmit one or more commands using a first communications protocol to a first controller of the device, wherein the one or more commands are configured to initiate a treatment process on a biological fluid of the one or more biological fluids, and wherein the first controller is communicatively coupled to a first group of components of the device and configured to operate the first group of components using one or more commands formatted using the first communications protocol,

wherein the first group of components comprises:

a display configured to provide visual cues to the user of the device and configured to accept one or more inputs, and

a scanner configured to collect identifying information associated with a biological fluid being treated;

at the first controller, convert the one or more commands in the first communications protocol into one or more commands in a second communications protocol and transmitting the one or more commands in the second communications protocol to a second controller of the device; and

at the second controller, convert the received one or more commands in the second communications protocol into one or more commands to control one or more components of a second group of components of the device and transmitting the one or more commands to one or more components of the second group of components, wherein the one or more commands to control the one or more components of the second group of components are configured to cause the device to treat a biological fluid of the one or more biological fluids,

wherein the second group of components comprises one or more light engines, wherein each light engine is configured to illuminate a biological fluid of the one or more biological fluids.

36. The computer readable storage medium of claim 35, wherein the second group of components comprise:

one or more platforms, wherein each platform of the one or more platforms is configured to carry a biological fluid of the one or more biological fluids.

37. The computer readable storage medium of claim 35 or claim 36, wherein the second group of components are configured to operate only in response to one or more commands transmitted from the second controller using the second communications protocol.

38. The computer readable storage medium of any one of claims 35-37, wherein a message transmitted in the second communications protocol includes information about the component that generated the message.

39. The computer readable storage medium of any one of claims 35-38, wherein the first group of components include one or more components configured to allow an external user to interface with the device.

40. The computer readable storage medium of any one of claims 35-39, wherein the display is a touchscreen display configured to accept one or more touch inputs from the user of the device.

41. The computer readable storage medium of any one of claims 35-40, wherein the second group of components further includes one or more agitators, wherein each agitator is configured to agitate a biological fluid of the one or more biological fluids so as to distribute the biological fluid within a container that is disposed on a platform of the one or more platforms of the device.

42. The computer readable storage medium of any one of claims 35-41, wherein the electronic device comprises one or more treatment chambers configured to receive a biological

fluid of the one or more biological fluids, and wherein each platform of the one or more platforms are configured to be positioned in a treatment chamber of the one or more treatment chambers.

43. The computer readable storage medium of any one of claims 35-42, wherein the second group of components further comprise one or more sensors configured to detect an operating condition of the device or a property of the biological fluid.

44. The computer readable storage medium of any of claims 35-43, wherein the one or more light engines includes one or more arrays of light sources positioned to illuminate a biological fluid of the one or more biological fluids and wherein the one or more arrays of light sources are configured to emit light in an ultraviolet light spectrum.

45. The computer readable storage medium of claim 44, wherein the one or more arrays of light sources each comprise a first light source channel configured to emit ultraviolet light with a first peak wavelength from about 315 nm to about 350 nm.

46. The computer readable storage medium of claim 44 or claim 45, wherein the one or more arrays of light sources comprise one or more light sources each of which emits light having a full-width half-maximum (FWHM) spectral bandwidth of less than 20 nanometers.

47. The computer readable storage medium of any one of claims 44-46, wherein the one or more arrays of light sources comprise one or more light sources, and wherein the one or more light sources are light emitting diodes (LEDs).

48. The computer readable storage medium of any one of claims 35-47, wherein the one or more light engines further comprise one or more sensors configured to detect light energy from the one or more arrays of light sources.

49. The computer readable storage medium of any one of claims 43-48, wherein the second controller is configured to turn one or more of the second group of components on or off based on one or more signals transmitted by the one or more sensors.

50. The computer readable storage medium of any one of claims 35-49, wherein the electronic device comprises:

a first treatment chamber configured to receive a first biological fluid;

a second treatment chamber configured to receive a second biological fluid:

a first platform configured to carry the first biological fluid and to be positioned in the first treatment chamber;

a second platform configured to carry the second biological fluid and to be positioned in the second treatment chamber; and

a first array of light sources positioned to illuminate the first biological fluid in the first treatment chamber and a second array of light sources positioned to illuminate the second biological fluid in the second treatment chamber.

51. The computer readable storage medium of any one of claims 35-50, wherein treating the one or more biological fluids comprises illuminating the biological fluids for a duration and at an intensity sufficient to inactivate a pathogen in the biological fluid.