including how much milk was collected, the date/time of the collection, which breast(s) the milk was collected from, etc. A manual pumping log is a tedious process as it requires the mother to keep track of her pumping session and write down information. To effectively analyze her performance from the log, the mother would need to enter this data into a computer to evaluate trends and anomalies.

[0005] It is desirable, therefore, to provide a system to the mother that can easily and accurately capture and manage milk collection information, that minimizes the effort involved, and that works seamlessly with her lifestyle. With the advances in portable computing power, as demonstrated in the increasing capabilities of smart phones, data can be collected and utilized in situ. A milk collection device that enables automatic data collection through interaction with a computer, such as a smart phone, would be beneficial to mothers.

SUMMARY

[0005a] According to a first aspect of the present invention, there is provided a method for managing a supply of breast milk of a mother, the method comprising: receiving, via a computing device, at least one image of a container for receiving expressed breast milk, the container including a codification element associated therewith and the at least one image incorporating the codification element; recognizing the codification element within the at least one image using the computing device; analyzing the at least one image and codification element using the computing device; and producing feedback regarding the supply of expressed breast milk based on the analysis.

[0005b] According to a second aspect of the present invention, there is provided a non-transitory computer readable medium having stored thereon instructions executable by a computing device to cause the computing device to perform functions comprising: recognizing a codification element contained in an image associated with a container of expressed breast milk; obtaining information

regarding the codification element; analyzing the image and the codification element; and providing information regarding the supply of expressed breast milk based on the analysis.

[0005c] According to a third aspect of the present invention, there is provided a container for collecting expressed breast milk from a mother, the container comprising: at least one codification element, wherein the at least one codification element is configured to be incorporated into and transmitted in an image, the image configured for receipt and analysis by a computing device to provide analysis and feedback regarding the mother's breast milk supply expressed breast milk within the container based on the image and the codification element information contained therein.

[0005d] According to a fourth aspect of the present invention, there is provided a method for managing the fit of a mother's nipple within a breastshield, the method comprising: receiving, via a computing device, at least one image of a breastpump kit or portion thereof for receiving expressed breast milk, the breastpump kit including a codification element associated therewith; recognizing the codification element within the at least one image using the computing device; analyzing the codification element within the at least one image using the computing device; and producing feedback regarding the fit of the mother's nipple based on the analysis.

[0005e] According to a fifth aspect of the present invention, there is provided a non-transitory computer readable medium having stored thereon instructions executable by a computing device to cause the computing device to perform functions comprising: recognizing a codification element within an image associated with a breastpumping kit; obtaining information regarding the codification element; analyzing the codification element and the image in combination; and providing information regarding the fit of the mother's nipple within a breastshield based on the analysis.

[0005f] According to a sixth aspect of the present invention, there is provided a collection system for collecting expressed breast milk from a mother, the collection system comprising: a breastpumping kit including a breast shield, a valve, a connector piece, and a collection container; and at least one codification element, wherein the at least one codification element is configured to be transmitted in an image and

analyzed by a computing device to provide analysis and feedback regarding the fit of the mother's nipple within the breast shield.

[0006] A system and method for managing a supply of breast milk is also provided. The system includes a codified container for receiving expressed breast milk and a computing device for receiving an image of the expressed milk in the codified container. The codification may allows for software to recognize the size and type of the container, as well as to scale and orient, to translate the image into an accurate volume. The milk data is then processed and analyzed to produce feedback regarding the pumping session, such as logs, charts, or reminders.

[0007] ~~In one embodiment, a~~ A method for managing a supply of breast milk of a mother is also disclosed. The method includes receiving, via a computing device, at least one image of a container for receiving expressed breast milk, the container including a codification element associated therewith, recognizing the codification element using the

computing device, analyzing the codification element using the computing device, and producing feedback regarding the supply of expressed breast milk based on the analysis.

[0008] ~~In yet another embodiment, a~~ A non-transitory computer readable medium is also disclosed. The computer readable medium has stored thereon instructions executable by a computing device to cause the computing device to perform functions comprising recognizing a codification element associated with a container of expressed breast milk, obtaining information regarding the codification element, analyzing the codification element, and providing information regarding the supply of expressed breast milk based on the analysis.

[0009] ~~In yet another embodiment, a~~ A container for collecting expressed breast milk from a mother is also disclosed. The container includes at least one codification element. The codification element is configured to be analyzed by a computing device to provide analysis and feedback regarding the mother's breast milk supply expressed breast milk within the container.

[0010] ~~In yet another embodiment, a~~ A method for managing the fit of a mother's nipple within a breastshield is also disclosed. The method includes receiving, via a computing device, at least one image of a breastpump kit or portion thereof for receiving expressed breast milk, the breastpump kit including a codification element associated therewith, recognizing the codification element using the computing device, analyzing the codification element using the computing device, and producing feedback regarding the fit of the mother's nipple based on the analysis.

[0011] ~~In yet another embodiment, a~~ A non-transitory computer readable medium is also disclosed. The computer readable medium has stored thereon instructions executable by a computing device to cause the computing device to perform functions comprising recognizing a codification element associated with a breatpumping kit, obtaining

information regarding the codification element, analyzing the codification element, and providing information regarding the fit of the mother's nipple within a breastshield based on the analysis.

[0012] ~~In yet another embodiment, a~~ A collection system for collecting expressed breast milk from a mother is also provided. The collection system includes a breastpumping kit including a breast shield, a valve, a connector piece, a collection container, and a breastpump, and at least one codification element. The at least one codification element is configured to be analyzed by a computing device to provide analysis and feedback regarding the fit of the mother's nipple within the breast shield.

[0013] These and other features and advantages of the present application will be further understood and appreciated when considered in relation to the following detailed description, taken in conjunction with the drawings, in which:

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] FIG. 1 is a perspective view of an example system according to an embodiment;

[0015] FIG. 2 is a perspective view of an example of a codified container for use with the system shown in FIG. 1;

[0016] FIG. 3 is a perspective view of an example breastpump kit having a codified container for use with the system shown in FIG. 1;

[0017] FIG. 4 is a flow chart of an example method of managing a supply of breast milk according to an embodiment; and

[0018] FIG. 5 is a simplified block diagram of an example computing device in which an embodiment may be implemented.

WHAT IS CLAIMED IS:

1. A method for managing a supply of breast milk of a mother, the method comprising:

receiving, via a computing device, at least one image of a container for receiving expressed breast milk, the container including a codification element associated therewith;

recognizing the codification element using the computing device;

analyzing the codification element using the computing device; and

producing feedback regarding the supply of expressed breast milk based on the analysis.

2. The method of claim 1 wherein the at least one image comprises a series of images.

3. The method of claim 1 wherein analyzing the codification element comprises scaling and orienting the container to calculate an accurate volume.

4. The method of claim 1 wherein the feedback includes at least one of: information regarding the volume of the breast milk within the container, information regarding quality of the breast milk, a pumping log, performance charts, or a reminder.

5. The method of claim 1 wherein the codification element comprises a computer-readable image located on the container.

6. The method of claim 1 wherein the codification element comprises a feature of the container.

7. The method of claim 1 wherein the feedback is provided in real-time.

8. The method of claim 1 further comprising providing the feedback to a user of the computing device.

9. The method of claim 1 further comprising providing the feedback to a healthcare professional.

10. The method of claim 1 further comprising providing the feedback to a breastpump.

11. The method of claim 1 wherein the computing device is in communication with a breastpump.

12. A non-transitory computer readable medium having stored thereon instructions executable by a computing device to cause the computing device to perform functions comprising:

recognizing a codification element associated with a container of expressed breast milk;

obtaining information regarding the codification element;

analyzing the codification element; and

providing information regarding the supply of expressed breast milk based on the analysis.

13. The non-transitory computer readable medium of claim 12 wherein analyzing the codification element comprises scaling and orienting the container to calculate an accurate volume.

14. The non-transitory computer readable medium of claim 12 wherein the functions further include automatically correcting for volumetric expansion of frozen breast milk.

15. The non-transitory computer readable medium of claim 12 wherein the codification element comprises a computer readable image located on the container.

16. The non-transitory computer readable medium of claim 12 wherein the codification element comprises a feature of the container.

17. The non-transitory computer readable medium of claim 12 wherein the codification element is located within an image of the expressed breast milk, but not on the container.

18. The non-transitory computer readable medium of claim 12 wherein the information includes at least one of: volume of the breast milk within the container, information regarding quality of the breast milk, a pumping log, performance charts, or a reminder.

19. The non-transitory computer readable medium of claim 12 wherein the information is provided in real-time.

20. The non-transitory computer readable medium of claim 12 wherein the information is communicated to a breastpump.

21. The non-transitory computer readable medium of claim 12 wherein the computing device is in communication with a breastpump.

22. A container for collecting expressed breast milk from a mother, the container comprising:

at least one codification element, wherein the at least one codification element is configured to be analyzed by a computing device to provide analysis and feedback regarding the mother's breast milk supply expressed breast milk within the container.

23. The container of claim 22 wherein the computing device is in communication with a breastpump.

24. The container of claim 22 wherein the computing device is connected to a breastpump.

25. The container of claim 22 further comprising a plurality of codification elements.

26. The container of claim 22 wherein the codification element is a computer-readable image.

27. The container of claim 22 wherein the feedback is provided to a user of the computing device.

28. The container of claim 22 wherein the feedback is provided to a healthcare professional.

29. A method for managing the fit of a mother's nipple within a breastshield, the method comprising:

receiving, via a computing device, at least one image of a breastpump kit or portion thereof for receiving expressed breast milk, the breastpump kit including a codification element associated therewith;

recognizing the codification element using the computing device;

analyzing the codification element using the computing device; and

producing feedback regarding the fit of the mother's nipple based on the analysis.

30. The method of claim 29 wherein the codification element is part of the breastshield.

31. The method of claim 29 wherein the feedback includes information regarding nipple positioning.

32. The method of claim 29 wherein the feedback includes information regarding nipple extension.

33. The method of claim 29 wherein the feedback is provided to a breastpump for vacuum application control, comfort, or milk output.

34. The method of claim 29 wherein the codification element is a computer-readable image.

35. The method of claim 29 wherein the feedback is provided in real-time.

36. The method of claim 29 wherein the computing device is in communication with a breastpump.

37. A non-transitory computer readable medium having stored thereon instructions executable by a computing device to cause the computing device to perform functions comprising:

recognizing a codification element associated with a breatpumping kit;

obtaining information regarding the codification element;

analyzing the codification element; and

providing information regarding the fit of the mother's nipple within a breastshield based on the analysis.

38. The non-transitory computer readable medium of claim 37 wherein the codification element is located on a component of the breastpumping kit.

39. The non-transitory computer readable medium of claim 37 wherein the information is provided in real-time.

40. The non-transitory computer readable medium of claim 37 wherein the codification element comprises a computer readable image.

41. The non-transitory computer readable medium of claim 37 wherein the information is communicated to a breastpump.

42. The non-transitory computer readable medium of claim 37 wherein the computing device is in communication with a breastpump.

43. A collection system for collecting expressed breast milk from a mother, the collection system comprising:

a breastpumping kit including a breast shield, a valve, a connector piece, and a collection container; and

at least one codification element, wherein the at least one codification element is configured to be analyzed by a computing device to provide analysis and feedback regarding the fit of the mother's nipple within the breast shield.

44. The collection system of claim 43 wherein the codification element is located on a component of the breastpumping kit.

45. The collection system of claim 43 wherein the feedback is communicated to a breastpump.

46. The collection system of claim 43 wherein the computing device is in communication with a breastpump.

47. The collection system of claim 43 wherein the computing device is connected to a breastpump.

48. The collection system of claim 43 further comprising a plurality of codification elements.

49. The collection system of claim 43 wherein the codification element is a computer-readable image.

50. The collection system of claim 43 wherein the feedback is provided to the mother.

51. The collection system of claim 43 wherein the feedback is provided to a healthcare professional.

Claims

1. A method for managing a supply of breast milk of a mother, the method comprising:

receiving, via a computing device, at least one image of a container for receiving expressed breast milk, the container including a codification element associated therewith and the at least one image incorporating the codification element;

recognizing the codification element within the at least one image using the computing device;

analyzing the at least one image and codification element using the computing device; and

producing feedback regarding the supply of expressed breast milk based on the analysis.

2. The method of claim 1 wherein the at least one image comprises a series of images.

3. The method of claim 1 wherein analyzing the codification element of the at least one image comprises scaling and orienting the container to calculate an accurate volume.

4. The method of claim 1 wherein the feedback includes at least one of: information regarding the volume of the breast milk within the container, information regarding quality of the breast milk, a pumping log, performance charts, and a reminder.

5. The method of claim 1 wherein the codification element comprises a computer-readable image located on the container.

6. The method of claim 1 wherein the codification element comprises a feature of the container.

7. The method of claim 1 wherein the feedback is provided in real-time.

8. The method of claim 1 further comprising providing the feedback to a user of the computing device.

9. The method of claim 1 further comprising providing the feedback to a healthcare professional.

10. The method of claim 1 further comprising providing the feedback to a breastpump.

11. The method of claim 1 wherein the computing device is in communication with a breastpump.

12. A non-transitory computer readable medium having stored thereon instructions executable by a computing device to cause the computing device to perform functions comprising:

recognizing a codification element contained in an image associated with a container of expressed breast milk;

obtaining information regarding the codification element;

analyzing the image and the codification element; and

providing information regarding the supply of expressed breast milk based on the analysis.

13. The non-transitory computer readable medium of claim 12 wherein analyzing the image and the codification element comprises scaling and orienting the container to calculate an accurate volume.

14. The non-transitory computer readable medium of claim 12 wherein the functions further include automatically correcting for volumetric expansion of frozen breast milk.

15. The non-transitory computer readable medium of claim 12 wherein the codification element comprises a computer readable image located on the container.

16. The non-transitory computer readable medium of claim 12 wherein the codification element comprises information representing a characteristic a feature of the container.

17. The non-transitory computer readable medium of claim 12 wherein the codification element is located within an image of the expressed breast milk, but not on the container.

18. The non-transitory computer readable medium of claim 12 wherein the information includes at least one of: volume of the breast milk within the container, information regarding quality of the breast milk, a pumping log, performance charts, and a reminder.

19. The non-transitory computer readable medium of claim 12 wherein the information is provided in real-time.

20. The non-transitory computer readable medium of claim 12 wherein the information is communicated to a breastpump.

21. The non-transitory computer readable medium of claim 12 wherein the computing device is in communication with a breastpump.

22. A container for collecting expressed breast milk from a mother, the container comprising:

at least one codification element, wherein the at least one codification element is configured to be incorporated into and transmitted in an image, the image configured for receipt and analysis by a computing device to provide analysis and feedback regarding the mother's breast milk supply expressed breast milk within the container based on the image and the codification element information contained therein.

23. The container of claim 22 wherein the computing device is in communication with a breastpump.

24. The container of claim 22 wherein the computing device is connected to a breastpump.

25. The container of claim 22 further comprising a plurality of codification elements.

26. The container of claim 22 wherein the codification element is a computer-readable image.

27. The container of claim 22 wherein the feedback is provided to a user of the computing device.

28. The container of claim 22 wherein the feedback is provided to a healthcare professional.

29. A method for managing the fit of a mother's nipple within a breastshield, the method comprising:

receiving, via a computing device, at least one image of a breastpump kit or portion thereof for receiving expressed breast milk, the breastpump kit including a codification element associated therewith;

recognizing the codification element within the at least one image using the computing device;

analyzing the codification element within the at least one image using the computing device; and

producing feedback regarding the fit of the mother's nipple based on the analysis.

30. The method of claim 29 wherein the codification element is part of the breastshield.

31. The method of claim 29 wherein the feedback includes information regarding nipple positioning.

32. The method of claim 29 wherein the feedback includes information regarding nipple extension.

33. The method of claim 29 wherein the feedback is provided to a breastpump for vacuum application control, comfort, or milk output.

34. The method of claim 29 wherein the codification element is a computer-readable image.

35. The method of claim 29 wherein the feedback is provided in real-time.

36. The method of claim 29 wherein the computing device is in communication with a breastpump.

37. A non-transitory computer readable medium having stored thereon instructions executable by a computing device to cause the computing device to perform functions comprising:

recognizing a codification element within an image associated with a breastpumping kit;

obtaining information regarding the codification element;

analyzing the codification element and the image in combination; and

providing information regarding the fit of the mother's nipple within a breastshield based on the analysis.

38. The non-transitory computer readable medium of claim 37 wherein the codification element is located on a component of the breastpumping kit.

39. The non-transitory computer readable medium of claim 37 wherein the information is provided in real-time.

40. The non-transitory computer readable medium of claim 37 wherein the codification element comprises a computer readable image.

41. The non-transitory computer readable medium of claim 37 wherein the information is communicated to a breastpump.

42. The non-transitory computer readable medium of claim 37 wherein the computing device is in communication with a breastpump.

43. A collection system for collecting expressed breast milk from a mother, the collection system comprising:

a breastpumping kit including a breast shield, a valve, a connector piece, and a collection container; and

at least one codification element, wherein the at least one codification element is configured to be transmitted in an image and analyzed by a computing device to provide analysis and feedback regarding the fit of the mother's nipple within the breast shield.

44. The collection system of claim 43 wherein the codification element is located on a component of the breastpumping kit.

45. The collection system of claim 43 wherein the feedback is communicated to a breastpump.

46. The collection system of claim 43 wherein the computing device is in communication with a breastpump.

47. The collection system of claim 43 wherein the computing device is connected to a breastpump.

48. The collection system of claim 43 further comprising a plurality of codification elements.

49. The collection system of claim 43 wherein the codification element is a computer-readable image.

50. The collection system of claim 43 wherein the feedback is provided to the mother.

51. The collection system of claim 43 wherein the feedback is provided to a healthcare professional.