Claims

The invention claimed is:

1. A system comprising:

a handheld scanning device, wherein the handheld scanning device comprises a scanner display on a first side, scanning sensors on a second side, opposite to the first side, so that while the scanning sensors of the handheld scanning device are placed directly against a customer's skin, the display remains visible on the first side;

a battery, enclosed within the handheld scanning device, that powers the handheld scanning device;

the handheld scanning device is specifically configured to determine a final skin tone result comprising

to determine the final skin tone result, after being placed directly against a customer's skin at a first location, performing a first scan to generate a first intermediate result reflective of the first location, wherein the final skin tone result for the customer is unavailable for display on the scanner display after the first scan and before a second scan has been performed,

after being placed directly against the customer's skin at a second location, performing the second scan to generate a second intermediate result reflective of the second location,

using the first and second intermediate results, calculating the final skin tone result that is reflective of the first and second locations, and

displaying the final skin tone result on the display; and

the handheld scanning device is specifically configured to determine a final skin guide result comprising

to determine the final skin guide result, after being placed directly against a customer's skin at a third location, performing a third scan to generate a third intermediate result reflective of the third location, wherein the final skin guide result for the customer is unavailable for display on the scanner display after the first scan and before a second scan has been performed,

after being placed directly against a customer's skin at a fourth location, performing the fourth scan to generate a fourth intermediate result reflective of the fourth location,

using the third and fourth intermediate results, calculating the final skin guide result that is reflective of third and fourth locations, and

displaying the final skin guide result on the display.

2. The system of claim 1 wherein the handheld scanning device is specifically configured to determine the final skin guide result further comprising

after being placed directly against a customer's skin at a fifth location, performing the fifth scan to generate a fifth intermediate result reflective of the fifth location,

instead of using the third and fourth intermediate results to calculate the final skin guide result,

using the third and fourth and fifth intermediate results, calculating the final skin guide result that is reflective of third and fourth and fifth locations.

3. The system of claim 1 wherein the handheld scanning device determines the final skin tone result based on three or more scans.

4. The system of claim 1 wherein the handheld scanning device comprises at least two light-emitting diodes.

5. The system of claim 1 wherein the handheld scanning device comprises a first light emitting diode that emits light of a first wavelength and a second light emitting diode that emits light of a second wavelength, which is different from the first wavelength.

6. The system of claim 5 wherein the first wavelength is an ultraviolet light and the second wavelength is visible light.

7. The system of claim 1 further comprising:

a server, accessible by the handheld scanning device, comprising a customer database specifically configured to store a plurality of customer skin tone results associated with a plurality of customer identifiers.

8. The system of claim 1 further comprising:

a server, accessible by the handheld scanning device, comprising a customer database specifically configured to store a plurality of customer skin guide results associated with a plurality of customer identifiers.

9. The system of claim 1 further comprising:

a server, accessible by the handheld scanning device, comprising a customer database specifically configured to store a plurality of customer skin tone results and a plurality of customer skin guide results associated with a plurality of customer identifiers.

10. The system of claim 9 wherein the plurality of customer identifiers comprise an e-mail address.

11. The system of claim 8 wherein the customer database is further specifically configured to

receive from the handheld scanning device a first skin guide result and a first customer identifier, and

update the customer database to store the first skin guide result associated with the first customer identifier.

12. The system of claim 11 wherein for the first customer identifier, the server sends to an e-mail address corresponding to the first customer identifier the first skin guide result determined by the scanning device.

13. The system of claim 1 wherein the handheld scanning device comprises a smartphone and a sensor assembly placed against a camera of the smartphone, wherein the sensor assembly comprises a lens aligned with the camera and two or more light-emitting diodes.

14. The system of claim 1 wherein two or more light-emitting diodes of the sensor assembly are separate from light-emitting diodes of the smartphone.

15. The system of claim 13 wherein the sensor assembly is wirelessly coupled to the smartphone via at least one of a Bluetooth connection or a near-field communication (NFC) connection.

16. The system of claim 13 wherein the sensor assembly is wirelessly charged.

17. The system of claim 13 wherein the sensor assembly comprises a battery, separate from the battery of the smartphone.

18. The system of claim 1 wherein the handheld scanning device is specifically configured to determine a final skin guide result further comprising

before performing the third and fourth scans, presenting a plurality of questions on the display for the customer, and after answers to the questions are input to the handheld scanning device, proceeding to the third and fourth scans.

19. The system of claim 18 wherein the handheld scanning device is specifically configured to determine a final skin guide result further comprising

instead of using the third and fourth intermediate results, calculating the final skin guide result that is reflective of third and fourth locations,

using the third and fourth intermediate results and further at least one of the answers to the questions are input to the handheld scanning device, determining the final skin guide result that is reflective of third and fourth locations.

20. The system of claim 1 comprising:

a plurality of cosmetic products on one or more shelves in a retail store, each product having a physical shelf tag associated with that product, wherein each shelf tag comprises a

printed skin tone identifier, and the skin tone identifier and the final skin tone result reference the same skin tone color space.