

What is claimed is:

1. An authentication image acquisition device which has an authentication light source, an authentication image acquisition unit, and an authentication image processing unit,

wherein said authentication light source is configured for irradiating light that contains at least red light in the visible light region, toward a palm of human body,

wherein said authentication image acquisition unit is configured for obtaining at least one reflection image to form by the light which is emitted from said authentication light source and is reflected on said palm of human body, and

wherein said authentication image processing unit is configured for performing the image processing of said reflection image, and thereby extracting said shape of the palm print and vein pattern in the palm respectively from said one reflection image for authentication to conduct the processing to generate the authentication data.

2. The authentication image acquisition device as described in claim 1, wherein said authentication image processing unit is configured to perform the processing for extracting said shape of the palm print by transforming the data corresponding to said reflection image into the value of gray scale based on R signal, G signal, and B signal in RGB color space, and

wherein said authentication image acquisition unit is configured to extract said shape of the veins as chrominance obtained by transforming said data corresponding to the reflection image into HSV color space, altering the phase of H signal and the intensity of S signal in this HSV color space, and subsequently transforming said HSV color space into RGB color space and CMYK color space.

3. The authentication image acquisition device as described in claim 1 or 2, wherein said authentication image processing unit is configured to further

perform the processing for generating said authentication data by performing synthesis processing of said extracted shape of the palm print and said extracted shape of the veins for authentication.

4. The authentication image acquisition device as described in any one of claims 1 to 3, wherein said authentication light source and said image acquisition unit are both implemented on one mobile terminal.

5. The authentication image acquisition device as described in claim 4, wherein said mobile terminal is provided with a display screen capable of externally emitting light containing red light , and wherein said authentication light source is made up of said display screen.

6. A template image acquisition device which includes a template light source , a template image acquisition unit, a template image processing unit, and a template data storage unit, wherein said template light source is configured to be capable of irradiating light containing at least red light in the visible light region toward the palm of a human body, wherein said template image acquisition unit is configured to acquire at least one reflection image to form by the light which is irradiated from the template light source and is reflected on said palm of the human body, and wherein said template image processing unit is configured for performing image processing of said reflection image, thereby extracting the shape of palm print and the shape of the veins in the palm respectively from one sheet of said reflection image for template so as to perform the processing to generate the template data, wherein said template data storage unit is configured for storing said template data.

7. An individual authentication system which has the authentication image acquisition device as described in any one of claims 1 to 5, the template

image acquisition device as described in claim 6, and a matching unit, wherein said matching unit is configured to perform individual authentication by comparing said authentication data captured by said authentication image acquisition device with said template data stored in said template data storage unit.

8. The individual authentication system as described in claim 7 further includes an authentication processing drive device, a matching result transforming device, and a matching result receiving device, wherein said authentication processing drive device is configured to request said authentication image acquisition device to start the authentication processing when the prescribed conditions have been met, wherein said matching result transforming device is configured to receive the result of matching conducted by said matching unit, wherein said matching result transforming device is configured to generate a unique code to the person himself/herself or the terminal used by the same, when the result of said matching has been satisfactory in the individual authentication, and wherein said matching result receiving device is configured to receive said code generated by said matching result transforming device.

9. A method for individual authentication including the following steps:
(1) a step of acquiring at least one reflection image formed by light which is emitted from the authentication light source which emits at least red light in the visible light region and reflected on the palm of a human body;
(2) a step of extracting the shape of the palm print and the shape of the veins in said palm respectively from said one reflection image for authentication, by performing image processing of said one reflection image;
(3) a step of performing authentication by comparing said data for authentication with the template data previously registered.

10. The method for individual authentication as described in claim 9, wherein said authentication data includes a first authentication data that corresponds to said shape of the palm print and a second authentication data that corresponds to said shape of the vein pattern, wherein said authentication includes a first authentication and a second authentication to be conducted after performing the first authentication, and wherein said first authentication is conducted using said first authentication data and said second authentication is conducted using said second authentication data.

11. The method for individual authentication as described in claim 9, wherein said authentication data includes a third authentication data created by integrating the first authentication data corresponding to said shape of the palm print with the second authentication data corresponding to said shape of the veins, and wherein said authentication is performed using said third authentication data.

12. The method for individual authentication as described in any one of claims 9 to 11 including the following steps to be performed prior to said authentication:

- (a) a step of acquiring at least one reflection image to form by the light which is emitted from the template light source emitting at least red light in the visible light region, and is reflected on the palm of human body;
- (b) a step of extracting the shape of the palm print and shape of the veins in said palm respectively from said one reflection image for template, by performing image processing of said reflection image, and
- (c) a step of saving said template data for succeeding authentication.

13. A computer program to get a computer executing the method as described in any one of claims 9 to 12.

What is claimed is:

1. An authentication image acquisition device which has an authentication light source, an authentication image acquisition unit, and an authentication image processing unit,
wherein said authentication light source is configured for irradiating light that contains at least red light in the visible light region, toward a palm of human body,
wherein said authentication image acquisition unit is configured for obtaining at least one reflection color image to form by the light which is emitted from said authentication light source and is reflected on said palm of human body, and
wherein said at least one reflection color image has RGB pixel values in RGB color space or pixel values equivalent thereto, and
wherein said authentication image processing unit is configured for performing the image processing of said one reflection color image, and thereby extracting said shape of the palm print and vein pattern in the palm respectively from said one reflection color image for authentication to conduct the processing to generate the authentication data.

2. The authentication image acquisition device as described in claim 1 wherein; said authentication image acquisition unit is for use of visible light, and said one reflection color image is formed by wavelength bandwidth in the visible light region.

3. The authentication image acquisition device as described in any one of claims 1 or 2, wherein said authentication image processing unit is configured to perform the processing for extracting said shape of the palm print by transforming the data corresponding to said reflection image into the value of gray scale based on R signal, G signal, and B signal in RGB color space, and
wherein said authentication image acquisition unit is configured to extract said shape of the veins as chrominance obtained by transforming said data corresponding to the reflection image into HSV color space, altering the phase of H signal and the intensity of S signal in this HSV color space, and subsequently transforming said HSV color space into RGB color space and CMYK color space.

4. The authentication image acquisition device as described in any one of claims 1 to 3,

wherein said authentication image processing unit is configured to further perform the processing for generating said authentication data by performing synthesis processing of said extracted shape of the palm print and said extracted shape of the veins for authentication.

5. The authentication image acquisition device as described in any one of claims 1 to 4, wherein said authentication light source and said image acquisition unit are both implemented on one mobile terminal.

6. The authentication image acquisition device as described in claim 5, wherein said mobile terminal is provided with a display screen capable of externally emitting light containing red light, and wherein said authentication light source is made up of said display screen.

7. A template image acquisition device which includes a template light source , a template image acquisition unit, a template image processing unit, and a template data storage unit, wherein said template light source is configured to be capable of irradiating light containing at least red light in the visible light region toward the palm of a human body, wherein said template image acquisition unit is configured to acquire at least one reflection color image to form by the light which is irradiated from the template light source and is reflected on said palm of the human body, and wherein said at least one reflection color image has RGB pixel values in RGB space or pixel values equivalent thereto, wherein said template image processing unit is configured for performing image processing of said one reflection color image, thereby extracting the shape of palm print and the shape of the veins in the palm respectively from said one reflection color image for template so as to perform the processing to generate the template data, wherein said template data storage unit is configured for storing said template data.

8. An individual authentication system which has the authentication image acquisition device as described in any one of claims 1 to 6, the template image acquisition device as described in claim 7, and a matching unit,

wherein said matching unit is configured to perform individual authentication by comparing said authentication data captured by said authentication image acquisition device with said template data stored in said template data storage unit.

9. The individual authentication system as described in claim 8 further includes an authentication processing drive device, a matching result transforming device, and a matching result receiving device, wherein said authentication processing drive device is configured to request said authentication image acquisition device to start the authentication processing when the prescribed conditions have been met, wherein said matching result transforming device is configured to receive the result of matching conducted by said matching unit , wherein said matching result transforming device is configured to generate a unique code to the person himself/herself or the terminal used by the same, when the result of said matching has been satisfactory in the individual authentication, and wherein said matching result receiving device is configured to receive said code generated by said matching result transforming device.

10. A method for individual authentication including the following steps:
(1) a step of acquiring at least one reflection color image formed by light which is emitted from the authentication light source which emits at least red light in the visible light region and reflected on the palm of a human body; wherein at least one reflection color image has RGB pixel values in RGB color space or pixel values equivalent thereto;
(2) a step of extracting the shape of the palm print and the shape of the veins in said palm respectively from said one reflection color image for authentication, by performing image processing of said one reflection color image;
(3) a step of performing authentication by comparing said data for authentication with the template data previously registered .

11. The method for individual authentication as described in claim 10, wherein said authentication data includes a first authentication data that corresponds to said shape of the palm print and a second authentication data that corresponds to said shape of the vein pattern,

wherein said authentication includes a first authentication and a second authentication to be conducted after performing the first authentication, and wherein said first authentication is conducted using said first authentication data and said second authentication is conducted using said second authentication data.

12. The method for individual authentication as described in claim 10, wherein said authentication data includes a third authentication data created by integrating the first authentication data corresponding to said shape of the palm print with the second authentication data corresponding to said shape of the veins, and wherein said authentication is performed using said third authentication data.

13. The method for individual authentication as described in any one of claims 10 to 12 including the following steps to be performed prior to said authentication:

- (a) a step of acquiring at least one reflection image to form by the light which is emitted from the template light source emitting at least red light in the visible light region, and is reflected on the palm of human body;
- (b) a step of extracting the shape of the palm print and shape of the veins in said palm respectively from said one reflection image for template, by performing image processing of said reflection image, and
- (c) a step of saving said template data for succeeding authentication.