

The present invention essentially relates to a process for making up the face, in particular the eyes, and to a device for carrying it out. More particularly, the invention concerns a process for the personalized making up of the eyes (upper and lower lids, inner edge of these lids, lashes and eyebrows), as well as a device for assisting in the choice of shades of make-up products.

Up to the present time, the making up of the face, particularly the making up of the eyes, was effected by rule-of-thumb and little personalized manner. When it was desired to harmonize the shades of the make-up with the colour of the eyes, one was generally limited to the use of a relatively limited number of make-up shades adapted solely to the colours of the main classes of eyes (black, brown, blue and green).

Thus, document US-A-4,561,850 describes a colour coordinator proposing make-up products and taking into account the general colour of the skin and the general colour of the eye (see column 1, line 55 to column 2, line 2 and column 4, lines 4 to 6).

In fact, no one had envisaged, in order to render the make-up more personal, reproducing therein, in very precisely adjusted manner, the different individual colours characteristic of the iris of the eye of each individual. Thus many of these precise shades did not exist, particularly in the form of pencils or eyeshadows, and those which did exist were for the most part dispersed between different sales points, which geographically, were very far from one another. It was therefore virtually impossible, with the make-up products on the market, to make up the face and in particular the eyes in a particular personalized way taking into account the various coloured shades characteristic of each iris.

Furthermore, in a field which is completely different from the make-up field, document WO86/05,018 describes a method and a device for identifying a person which uses the structure and the essentially geometrical characteristics of a person's pupil and iris with a view to its identification.

The present invention therefore has for its object to solve the new technical problem consisting in providing a solution allowing personalized make-up of the face, in particular the eyes, and facilitating the choice of the shades of products for effecting such make-up.

The invention also proposes to provide a simple solution to this problem which may be used by a person without particular training.

The present invention is based on the discovery of the fact that it was possible to obtain a personalized make-up of high aesthetic value by analysis of the different coloured zones of the iris and that the richness of the characteristic colours of the irises made it possible to create new, more varied shades and to enrich the existing shades of the make-up products.

In fact, it has been observed that, although in relatively limited number, these different individual colours generate, by reason of their localization and their extent in the iris, an infinity of combinations, each combination being in practice characteristic of an individual.

Thus, according to a first aspect, the present invention provides a process for making up the face, in particular the eyes, whereby in a first stage, the different individual colours of the iris of the eye of the face to be made up comprising at least the sparkle colour(s) or the contour colour of the iris, are determined by appropriate colour determining technical means and, in a second stage, there are applied on the zones of the face to be made up one or more make-up products whose shade corresponds to at least one of said individual colours of the iris, in order to effect a personalized make-up of the face, in particular of the eyes.

It will be specified that, in the present description, the term "correspondence" between the shade of a make-up product and an individual colour of the iris is understood to mean the fact that this shade is substantially identical to said individual colour or that it was previously chosen by an expert in the make-up field as being able to match said individual colour from an aesthetic point of view.

It will also be specified that, within the meaning of the present invention, the expression "personalized make-up" means that the different individual colours of the iris are taken into account with a very high precision, either these different colours are reproduced in very precise manner or make-up products are used whose shade has been matched to one of these very precise colours.

According to a second aspect, the present invention also provides a process for assisting in the choice of shades of make-up products of the face, in particular make-up of the eyes, whereby one or more individual colours of the iris of the eye of the face to be made up comprising at least the sparkle colour(s) of the iris or the contour colour of the iris, are determined by appropriate colour determining technical means, and at least one of these colours is used as reference shade in the choice

of make-up products, with a view to effecting a personalized make-up of the face, in particular of the eyes.

According to a particular variant embodiment of any one of the above-mentioned processes of the invention, at least the sparkle colour(s)
5 of the iris and the contour colour of the iris are determined.

According to another particular variant embodiment, the impression colour of the iris is determined.

The term "contour colour" of the iris is understood to mean the colour of the iris localized on its periphery.

10 The term "impression colour" of the iris is understood to mean the dominant colour of the iris. In practice, this impression colour may be a colour resulting from the average or the integration of all the colours within the iris, included between the contour colour of the iris and the pupil.

The term "sparkle colour" of the iris is understood to mean the
15 colour of the different dots or marks of small dimensions, distributed over the surface of the iris between the pupil and the contour. Each iris generally comprises from 1 to 5 sparkle colours. The sparkle colours generally give the look the essential of one's personality.

According to a particular embodiment of the processes of the
20 invention mentioned above, the iris is illuminated with a determined light, for example daylight or the light of a lamp of defined characteristic(s), and a coloured image of the iris is taken with a colour image-taking device, such as a photographic apparatus preferably comprising a function of digitalization of the image, or a colour video camera preferably having very
25 good chromatic performances.

According to a particular variant embodiment, the localization and surface of the areas of each of the colours which characterize the iris are determined and the results are used to determine the contour colour, the sparkle colour(s) and the impression colour.

30 According to a particular embodiment of the invention, pencils such as kohl pencils or eye-liner pencils, mascaras, eye shadows, in particular in the form of compressed powders, cheek blushes or lipsticks, are chosen or used as make-up products.

Advantageously, the pencils preferably correspond to the contour
35 and impression colours, the mascaras preferably correspond to the contour colour, and the eye shadows, as well as the blushes and lipsticks, preferably correspond to the sparkle colours.

According to another particular embodiment of the above-mentioned processes of the invention, one or more lists of make-up products are made to correspond, in a preliminary step, to different particular combinations of individual colours of iris, in particular contour, impression and sparkle colours, and for each of these combinations, each list making it possible to effect a particular type of make-up of which the shade or shades correspond to one or several colours of said combination, and then, after having determined the individual colours of the iris of the face to be made up, the comparison is made between the combination of colours of this iris on the one hand and the different particular combinations mentioned above on the other hand, so as to determine from the latter which is the one closest to the iris in question, or as the case may be, which are the closest ones, thus making it possible to obtain one or more lists of make-up products so as to effect a personalized make-up of the face, in particular of the eyes.

The above-mentioned particular combinations of individual colours of iris are preferably chosen so that they constitute together a sample representative of a population of individuals concerned. Several variant combinations of colours are advantageously chosen in each class of the classification of eye colours described hereinafter. The number of these particular combinations used for carrying out the particular embodiment mentioned above is generally between 50 and 150, preferably included between 80 and 110.

According to a particularly advantageous embodiment of the process of the invention, the eye is illuminated by centering the illumination on the pupil, which may easily be effected for example with the aid of optical fiber(s). Once centering on the pupil is effected,

- a colour image of the iris is taken with a colour image-taking device such as a photographic apparatus or a colour video camera mentioned above,

- with the aid of an image analysis device particularly employed with the use of a computer such as a micro-computer, registration of the pupil and withdrawal thereof from the image is effected,

- then the contour of the eye is registered by difference between the white of the eye and the colour of the eye, which then makes it possible to determine the contour colour of the iris at the limit of the white of the eye.

- the contour colour is then withdrawn and an average or an integration is made of all the colours within the iris located between the contour colour and the pupil, resulting in the impression colour.

5 In the case of a colour image-taking with a colour video camera, the sparkle colour(s) of the iris are sought with the aid of the pixels automatically processed by the computer in order to give a purified iris. On the purified iris, a matrix is defined and by contrast the sparkle colours are determined.

10 In the particular case of a colour photo, this photo may be filmed with a colour video camera to proceed with the definitions of the contour, impression and sparkle colours as described previously, but, in order to obtain a better quality of the result, a photo apparatus is preferably used which comprises a function of digitalization of the image.

15 Furthermore studies conducted by the applicant on a large number of irises have shown that the different individual colours existing might be applied to a palette of colours in limited number, ranging from very dark brown to black, passing through different lighter shades such as medium brown, light brown, ochre, mastic, pale yellow, grey, turquoise, lavender, grey-blue, verdigris, khaki, pine green, blue with violet glints,
20 navy blue and dark blue.

A range of make-up products was thus effected which is the subject of a divisional application of the present application.

Preparation of said make-up products may be effected in accordance with techniques well known to the man skilled in the art, using
25 the appropriate pigments available on the market.

Thus, according to a third aspect, the present invention concerns a device for assisting in the choice of shades of make-up products, characterized in that it comprises means for illuminating the iris under determined conditions of illumination, means for taking a colour image of
30 the iris, as well as computer means capable of determining at least the sparkle colour(s) of the iris or the contour colour of the iris and optionally the impression colour of the iris, from the colour image supplied by the colour image-taking means.

According to a particular embodiment, illumination means on the
35 market are used, preferably of the annular illumination type for stereoscopic microscopy, particularly in the form of a toric neon tube, or preferably of the optical fiber illumination type, such as the "Fiber optic L151®" model by the

firm HEIM A.G. (Switzerland). The illumination means advantageously produce so-called "day-light" or "northern light".

According to another particular variant embodiment, the means for taking a colour image of the iris comprise a colour video camera, preferably having very good chromatic performances, transmitting luminous information to computer means, for example a micro-computer or computer, equipped with a video card, and advantageously with display means such as a screen and/or a printer. The computer means advantageously make it possible to assess the characteristics of luminosity and the chromatic characteristics, for example in RVB coordinates, and to quantify the luminous information received in the form of signals transmitted by the video camera via said video card. They also comprise in memory different particular combinations of individual colours of irises, as well as, associated with each of these latter, one or more lists of make-up products for example in the form of commercial references, and may display on the display means, on the one hand, the different individual colours of the iris analysed and, on the other hand, the list or different lists of make-up products corresponding to the different individual colours of this iris, taken separately or in combination.

The different individual colours of the iris analyzed are advantageously classified as sparkle, contour and impression colours.

According to another particular embodiment, the above-mentioned image-taking means comprise a photographic apparatus and a colour film as well as means for developing into photographic images, and preferably a device comprising a function of digitalization of the image in order to make it possible to determine the individual colours as a function of their localization in the iris.

According to another variant embodiment of the device, the computer means also determine the localization and the surface of the ranges of individual colours which characterized the iris.

Thus, thanks to the invention, it is possible to determine in simple, reliable, substantially inexpensive manner, without particular training, the individual colours of the iris which may be used as basic shades in the choice of make-up products to effect a personalized make-up of the face, in particular of the eyes.

It may thus be provided that the computer means are capable of determining a list of recommended products, possibly with a plurality of

variants in each range of make-up products available on the market, or preferably in a range of make-up products according to the present invention, protected by a divisional application of said application, and of printing with the aid of a printer this list which is presented to the person
 5 whose iris has thus been analyzed.

Other objects, characteristics and advantages of the invention will appear in the light of the explanatory description which follows, with reference to the accompanying schematic drawings given solely by way of non-limiting examples illustrating a presently preferred embodiment of the
 10 invention, and in which:

Figure 1 is a schematic front view of an eye showing the different characteristic zones of the iris.

Figure 2 is a schematic view illustrating a device for assisting in the choice of shade of make-up products according to the invention.

15 Figures 3 to 5 schematically show three different personalized make-ups of the same eye, employing the process of the invention by means of make-up products chosen from the range of the invention.

Figure 1 therefore schematically shows a front view representing an eye.

20 For reasons of clarity of the Figure, the coloured zones have been represented only over a sector of the iris, but these zones are, of course, distributed over the whole of the iris.

Reference figure 1 generally designates the iris, figure 2 the pupil, figure 3 the lower edge of the upper lid and figure 4 the upper edge of
 25 the lower lid.

The coloured zones characteristic of the iris have generally been designated by the letters c for the zone corresponding to the contour colour, i for the zone corresponding to the impression colour and e_1 , e_2 , e_3 for the zones corresponding to the different sparkle colours (three different colours
 30 in the example shown).

By way of purely illustrative example, an eye of dark hazel colour may have the following coloured zones:

c: very dark brown

i: dark brown

35 e_1 : yellow ochre

e_2 : dark green

e_3 : light brown

The observation of the characteristic colours of the eyes of about a hundred persons made it possible to establish a classification of the colours of eyes given in Table I, the definitions making it possible to establish this classification being, in addition, given in Table II.

5 In Table II, the mentions "c", "i" and "e" indicate that the colours cited are generally, and respectively, contour, impression and sparkle colours.

TABLE I

10 CLASSIFICATION OF EYE COLOURS

BROWN EYES

- DARK BROWN
- DARK HAZEL
- 15 - LIGHT HAZEL
- OCHRE

GREEN EYES

- KHAKI
- 20 - GOLDEN GREEN
- VERDIGRIS

BLUE EYES

- VERY LIGHT BLUE
- 25 - BLUE-GREY
- NAVY BLUE

TABLE II

30 DEFINITIONS OF EYE COLOURS

DARK BROWN M1

Different browns (i) associated, or not, with black (c).

35 DARK HAZEL M2

Mixture of browns (i and e) and dark greens (c).

TABLE II (cont.)LIGHT HAZEL M3

Mixture of browns and greens (c and i) with ochre (e) and yellow ochre (e) spots.

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OCHRE M4

Same mixture with the ochres (i) in larger quantity than the greens (e and c) and the browns (e and c).

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KHAKI VI

Much green (c and i), a little pale yellow (e) and some ochre spots (e).

GOLDEN GREEN V2

Mixture in approximately equal quantities of green (c), green-yellow (i) and different ochres (e) associated with pale yellows (e).

15

VERDIGRIS V3

Mixture of green-yellow (c and i) and of green-blue (c and i) in large quantities with greys (e) in smaller quantity, which sometimes gives these eyes a blue glint.

20

VERY LIGHT BLUE B1

Mixture of different blues (c and i) with violet (e) or turquoise (e) and offwhite (e) glints which renders them very transparent.

25

NAVY BLUE B2

Mixture of different fairly strong blues (c and i) sometimes almost black in a large quantity and of offwhite (e), grey (e) or blue (e) in small quantity.

30

GREY-BLUE B3

Mixture of grey-blue (c and i) in large quantity with offwhite (e) in smaller quantity, with sometimes a verdigris (e) and spots of ochre (e). These are the most changing eyes.

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Figure 2 schematically shows a device for assisting in the choice of shade of make-up products according to the present invention.

This device generally comprises means 5 for illuminating the iris under determined conditions of illumination; means 6 for taking a colour image of the iris as well as computer means 7 make it possible to determine in particular the localization, the chromatic coordinates, the intensity and the surface of the zones of individual colours which characterize the iris.

This device may comprise in addition a means for holding the head such as for example a head-rest, and possibly a chin-rest, but an articulated arm is preferably used, bearing a camera whose lens is located in an eye-piece. The eye-piece is preferably in the form of a tube whose length makes it possible to obtain a pre-adjustment of focal distance, which may be improved thanks to a means for finely adjusting the focal distance, such as a knurl, as is well known to the man skilled in the art.

Said illumination means 5 generally comprise at least one lamp, for example a toric luminescent neon tube generating a light of daylight or northern light type. This toric tube will for example have an outer diameter of 7 cm and an inner diameter of 5 cm. In place of the luminescent tube as illumination means, illumination employing optical fibers will preferably be used, having for example an outlet section of about 5 mm diameter. Two optical fibers may be used, disposed on either side of the shot-taking lens, of which the illumination light is centered on the pupil, which in certain cases, when withdrawing the pupil from the image, may make it possible also to withdraw the image of the illumination beam which usually constitutes a slight disturbance in the determination of the colours.

The means 6 for taking a colour image of the iris generally comprise a colour video camera having good chromatic performances such as for example a CCD type camera.

The lens of the video camera is preferably placed at the centre of the toric tube, as shown in Figure 2. When an optical fiber type illumination is used, it is placed near the lens of the camera and directed towards the eye to be analyzed, centering the light on the pupil.

This video camera is connected to computer means 7 comprising for example a micro-computer advantageously equipped with display means such as a screen and a printer.

The image obtained by means of the video camera is stored via the video card, then processed by the micro-computer. The latter may advantageously be equipped with a micro-processor of the 80/386, or

preferably 80/486, type, with a hard disc of 40 mega-octets. The screen will advantageously be a colour screen of V.G.A. type.

5 The computer means 7 make it possible to determine the characteristics of luminosity and the chromatic characteristics, for example in RVB coordinates of each individual colour of the iris, i.e. the different contour, impression and sparkle colours defined hereinbefore.

10 To that end, and in accordance with the process described hereinabove in the preamble of the present specification, after having registered the pupil and withdrawn it from the image, the image analysis means seek the contour colour by difference between the white of the eye and the iris, at the limit of the iris to define a contour colour of the iris.

15 The image analysis means then withdraw the contour colour and effect an average or integration of all the colours within the iris defined between the contour of the iris and the pupil to determine an impression colour.

Finally, the sparkle colour(s) are sought from the pixels of the image, which gives a purified iris. From the purified iris, the image analysis means form a matrix which, by contrast, determines the sparkle colours.

20 The data thus obtained are compared with a data base grouping different particular combinations of iris colours, generally corresponding to a certain number of characteristic eyes, with which one or more lists of make-up products are associated.

25 Thus, after the comparison with this data base, said computer means make it possible to determine a list of recommended products, possibly with several variants in each range of make-up products available on the market such as eye shadows, mascaras or pencils, or preferably in a range of make-up products according to the invention, and to print this list with the aid of a printer 8, which list is offered to the person whose iris has thus been analyzed.

30 It should be noted that said data base may be enriched with new combinations of colours of the iris, particularly on the occasion of analyses such as those mentioned above.

35 Figures 3 to 5 represent, for the same face, three different personalized make-ups, after having carried out the processes of the invention, by means of make-up products chosen from a range of products of the invention.

Analysis of the iris of the eyes of this face gave the following results:

- contour colour: dark blue–grey (c)
- impression colour: medium grey–blue (i)
- 5 – sparkle colours:
 - very light turquoise blue (e1)
 - golden yellow ochre (e2)
 - very light turquoise–grey (e3)
 - light lavender (e4)

10 The make–up products recommended for this face, chosen from the range of products according to the invention, have been gathered together in Table III hereinafter. The shade of each product, figuring in this Table, by its commercial reference, is substantially identical to the corresponding individual colour of the iris.

15 In figures 3 to 5, the references indicated are those of the recommended make–up products.

TABLE III

Individual colours of the iris	Eye shadows	Pencils	Mascaras	Cheek blushes	Lipsticks
c		C34	M34		
i		C27			
e ₁	F18				
e ₂		C7		B7	R7
e ₃	F17				
e ₄	F19				

20

It is specified that the blush B7 and the lipstick R7, both of golden yellow ochre, have been recommended only in the case of the make–up of Figure 4.

25 Thus for the make–up of Figure 3, pencil C27 is applied on the upper lid, shadow F17 above the upper lid towards the inside and shadow F18 towards the outside and, on the lashes, mascara M34.

For the make-up of Figure 4, there is applied on the upper lid pencil C27, on the inner edge of the lower lid pencil C34, on the lower lid shadow F18, above the upper lid shadow F18, and on the lashes mascara M34.

- 5 For the make-up of Figure 5, there is applied on the upper lid pencil C7, on the inner edge of the lower lid pencil C27, on the lower lid shadow F17, above the upper lid shadow F17 towards the inside and shadow F19 towards the outside, and on lashes, mascara M34.

- 10 Thus, for the iris of the present example, constituting a certain particular combination of contour, impression and sparkle colours, it is possible to propose three lists of make-up products presented in Table IV hereinbelow. In addition, the zones recommended for application thereof are indicated.

15

TABLE IV

	1st list make-up Fig. 3	2nd list make-up Fig. 4	3rd list make-up Fig. 5
Upper lid	pencil C37	pencil C27	pencil C27
Top of upper lid inner part	shadow F17	shadow F18	shadow F17
Top of upper lid outer part	shadow F18	shadow F18	shadow F19
Lower lid	—	shadow F18	shadow F17
Inner edge lower lid	—	pencil C34	pencil C27
Lashes	mascara M34	mascara M34	mascara M34
Cheeks	—	blush B7	—
Lips	—	lipstick R7	—

- 20 In the present specification and claims, the expression "RVB coordinates" means the chromatic coordinates for defining a colour with respect to three directions of section corresponding to the basic colours Red, Green and Blue, which coordinates are well known to the man skilled in the art.

CLAIMS

1. Process for making up the face, in particular the eyes, whereby in a first stage, the different individual colours of the iris of the eye of the face to be made up comprising at least the sparkle colour(s) or the contour colour of the iris, are determined by appropriate colour determining technical means and, in a second stage, there are applied on the zones of the face to be made up one or more make-up products whose shade corresponds to at least one of said individual colours of the iris, in order to effect a personalized make-up of the face, in particular of the eyes.

2. Process for assisting in the choice of shades of make-up products for the face, in particular for making up the eyes, whereby one or more individual colours of the iris of the eye of the face to be made up comprising at least the sparkle colour(s) of the iris or the contour colour of the iris, are determined by appropriate colour determining technical means, and at least one of these colours is used as reference shade in the choice of make-up products, with a view to effecting a personalized make-up of the face, in particular of the eyes.

3. Process according to claim 1 or 2, characterized in that at least the sparkle colour(s) of the iris and the contour colour of the iris are determined.

4. Process according to one of claims 1 to 3, characterized in that the impression colour of the iris is also determined.

5. Process according to one of claims 1 to 4, characterized in that the iris is illuminated with a determined light, for example daylight or the light of a lamp of defined characteristic(s) and a colour image of the iris is taken with a colour image-taking device such as a photographic apparatus, preferably comprising a function of digitalization of the image, or a colour video camera.

6. Process according to one of claims 1 to 5, characterized in that the localization and the surface of the ranges of each of the colours which characterize the iris are determined and the results are used for determining the contour colour, the sparkle colour(s) and the impression colour.

7. Process according to one of claims 1 to 5, characterized in that pencils, such as khol pencils or eye-liner pencils, mascaras, eyeshadows, in particular in the form of pressed powders, blushes or



lipsticks are chosen or used as make-up product, and the pencils preferably correspond to the contour and impression colours, the mascaras preferably correspond to the contour colour and the eye shadows, as well as the blushes and lipsticks, preferably correspond to the sparkle colours.

5 8. Process according to one of claims 1 to 7, characterized in that, in a first step, one or more lists of make-up products are made to correspond to different particular combinations of individual iris colours, in particular contour, impression and sparkle colours, and for each of these combinations, each list making it possible to effect a particular type of
10 make-up whose shade or shades correspond to one or more colours of said combination and then, after having determined the individual colours of the iris of the face to be made up, the comparison is made between the combination of colours of this iris on the one hand, and the different particular combinations mentioned above on the other hand, so as to
15 determine among the latter which is the closest one to the iris concerned or, as the case may be, which are the closest ones, thus making it possible to obtain one or more lists of make-up products so as to effect a personalized make-up of the face, in particular of the eyes.

20 9. Process according to claim 8, characterized in that the above-mentioned particular combinations of individual iris colours are chosen so that they constitute together a sample representative of a population of individuals concerned.

25 10. Process according to one of claims 8 or 9, characterized in that the number of particular combinations is generally included between 50 and 150, preferably included between 80 and 110.

30 11. Device for assisting in the choice of shades of make-up products, characterized in that it comprises means for illuminating the iris under determined conditions of illumination, means for taking a colour image of the iris, as well as computer means capable of determining at least the sparkle colour(s) of the iris or the contour colour of the iris and optionally the impression colour of the iris, from the colour image supplied by the colour image-taking means.

35 12. Device according to claim 11, characterized in that the illumination means are of annular illumination type for stereoscopic microscopy, particularly in the form of a toric neon tube, or of the optical fiber illumination type, said illumination means preferably producing a so-called "daylight" or "northern light".



13. Device according to claim 11 or 12, characterized in that the means for taking a colour image of the iris comprise a colour video camera preferably having very good chromatic performances, transmitting luminous information to computer means, for example a micro-computer or computer, equipped with a video card, and advantageously with display means such as a screen and/or a printer.

14. Device according to claim 13, characterized in that the computer means make it possible to assess the characteristics of luminosity and the chromatic characteristics, for example in the form of RVB coordinates, and to quantify the luminous information received in the form of signals transmitted by the video camera via said video card, for example in RVB coordinates, and also comprising in memory different particular combinations of individual iris colours, as well as, associated with each of these latter, one or more lists of make-up products, for example in the form of commercial references, and may display on the display means, on the one hand, the different individual colours of the iris analysed, and, on the other hand, the or each different lists of make-up products corresponding to the different individual colours of this iris, taken separately or in combination.

15. Device according to claim 14, characterized in that the different individual colours of the iris analyzed are classified as sparkle, contour and impression colours.

16. Device according to one of claims 11 to 15, characterized in that said computer means are capable of determining a list of recommended products, possibly with a plurality of variants in each range of make-up products available on the market, and of printing this list with the aid of a printer which list is offered to the person whose iris has thus been analyzed.

17. Device according to one of claims 11 and 12, characterized in that the said image-taking means comprise a photographic apparatus preferably comprising a function of digitalization of the image.

18. Device according to one of claims 11 to 17, characterized in that the computer means also determine the localization and the surface of the ranges of individual colours which characterized the iris.

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