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IMPLEMENTATION OF AURA COLOURSPACE VISUALIZER TO DETECT HUMAN BIOFIELD USING IMAGE PROCESSING TECHNIQUE

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Abstract

The human body has enclosed with various mysteries. The research on human life brings out various interesting factors and characteristics, which has attracted various researches. One of the characteristics is human Bio-Field, which helps in identifying ones' health, mental condition, thought process and other status. Hence, interpretation of human bio-field may give out various interesting factors about human life and these factors can be utilised to identify the health/mental status of an individual, in the field of healthcare informatics. Although, identifying human bio-field is not such an easy task. It requires a lot of computations and other costs due to the hardware dependencies. The frequency of Human Bio-field falls under Electromagnetic (EM) range but cannot be visible by humans through naked eyes. Therefore, some special methodology is required to make them visible and interpret the meaning of the bio-field. The paper discusses a novel approach for the detection of human bio-field using image processing techniques, by defining new Color space. The major focus of this research is to reduce the computational and hardware costs in bio-field detection and interpretation.

Keywords: Colorspace, Colour map, Human bio-field, Image processing, Noise removal.

1. Introduction

Every person has his own signature symbol for identification of his/her physical or behavioural traits [1]. Beyond these features (physical or behavioural), another individual signature was discovered known as aura/human aura, which is scientifically known as Bio-field [2]. Bio-field is a fields surrounding living biological entities. Auras are like energy signatures close to each individual, representing their way of thinking and behaviour [3, 4]. They can have thermal, photonic, electromagnetic and magnetic components. One cannot see the aura of an individual with bare eyes, but possible with trained eyes (special visual power gained by any individual to see aura patterns, after a course of meditation). Hence, aura/bio-field is an electronic signature of an individual and signifies who we are. Rubik [5] and Sharma [6] reported that highly sensitive optical instruments are required to detect and measure the aspects of these fields.

The scientific study says that the human body produces various kinds of energies as electrical, magnetic, light, heat energy, sound energy, gravity, elastic energy, and chemical energy. This paper focuses on electric and magnetic energy as, these are simple to determine and their effects are well-studied [7, 8]. The presented research in this paper has grown out of a motive to develop and implement an algorithm to measure these energy fields nearby living objects to support in energy healing. Moreover, precise research of the clinical and biological impact of these diverse forms of energy is an improvement and applicably be called energy medicine. Thus, our interest has been to develop procedures to discover the delicate alterations in the bio-field. This can be associated with the state of health of living beings. This can be used to improve the quantitative measure of healer ability and healing energy dosage for energy remedy.

Another aspect of capturing and knowing aura is, if anyone knows the pattern of his or her own aura, that information can assist him or her in defining life's path (say, by determining the state of mind, positive or negative). Some well brand organization, for example, an advantage from this knowledge to help opt for students' talent for a more auspicious staff and its growth [9, 10].

Working on aura also intricate the work to foresee human behaviour. There are numerous variables, which shapes one's behaviour; hence, human behaviour's determinism has remained unpredictable. As stated earlier, the aura is dependent on the individual state of sentiment; therefore, its pattern is very much rest on time. There is a belief that there exists a base-aura/pure-aura pattern that is emitted by the soul when he or she is not influenced by any emotion or thought. This pattern is known as a stable or signatory pattern and this is the focus of the research [11, 12].

There are various techniques and models available to analyse the aura. In this research, the method used to analyse the aura is via image processing. The image processing technique is not so fancy in aura research. For instance, the technique used in evaluating the improvement of the human energy field through Yoga. Results obtained was by identifying the difference between the image and comparing by computing the differences between all the pairs of the equivalent pixels from the energy field image before and after yoga sessions [13, 14].

In brief, the need for analysing aura is to understand our environment better and connected with nature. The ability to visualize and deduce aura pattern and its

colours would help in several ways. Table 1 shows few benefits of evaluating aura, in various application areas are as follows:

Table 1. Benefits of evaluating aura.

Application Areas	Related Benefits
Health	The colour of aura get changed much earlier than the physical symptoms noticed in the body
Mental conditions	Depression, anxiety, anger, all such type negative circumstances that affect the one's state of mind may able to get controlled by aura analysis and remedial.
Relationships	Each colour has its own natural affinity. Visualizing the aura of the other person would make it effortless to comprehend the compatibility issues. It helps to determine the compatibility and chemistry between the people. Henceforth, it helps in nurturing an enriching relationship as per the choice and requirement.
Healing	Healing the affected body is time consuming, traumatic, challenging and less economical. While on the other hand healing through aura is much easier and more effective. This is due to aura can shows the illness earlier than it revealed. Thus, healing can start at the very early stage, which is less painful and faster.

2. Literature Review

Information about auras and chakras have found in Ancient Indian History Literature. Maharishi PATANJALI explains the information about the chakras (seven energy field or centres) and Human aura (energy field that exists around the living body). Until 1939, it was considering as a metaphysics concept. After 1939, Simeon Kirlian, a Russian electrician discovered the methodology for capturing an energy field by utilizing some photography techniques, which can also be used for reading and interpreting aura in the present days.

Various biofields: Their detection, measurement and behaviour.

The following as shown in Table 2, are the history timeline of bioelectric research:

Table 2. Historical background.

No.	Year	Remark
1.	1570	William Gilbert testifies the existence of an electrostatic force by scrubbing two distinct elements together and suggest that the earth has made up of magnets
2.	1660	Sir Isaac Newton discussed Descartes and elaborates the dynamic energy field is flowing in our nervous system, which is responsible for life function
3.	1733	English clergyman, Stephen Hales extends the work of Sir Isaac Newton by elaborating the function of nerves. They suggest that nerves act as a conductor and dynamic energy field is electricity
4.	1818	Mary Shelley's Frankenstein motivated by the Galvani's research with animal electricity
5.	1831	Carlo Matteucci testify the generation of electricity from the wounded tissues
6.	1859	Charles Darwin discussed the origin of species in the context of bioelectric organs
7.	1868	D'Arsonval published a research and suggest that if the change in energy field applied to the human mind then it will result in the perception of light
		Luis Bernstein suggests the theory of nerve action, in which, he discussed how the ion has transported from the neural membrane
8.	1924	Willem Einthoven awarded with the Nobel prize for the discovery of ECG

		Robert O. Becker deduces the connection between the psychic phenomena, limb generation, bioelectricity, and acupuncture
9.	1939	Kirlian photography presented a simple technique for capturing electromagnetic biofield. High voltage current has passed between metal plates, object, and record the coronal discharge. Recorded electric discharge has drawn on film. This technique is heavily dependent on hardware and system setup cost is moderate [15]
10.	1980's	Oldfield developed poly-contrast interference photography (PIP). The developed techniques analyse and able to distinguish between the electromagnetic light intensities. Oldfield claims that PIP helps for medicinal diagnosis. Here aura has generated after going through various observations in the static environment. This is not productive, hardware dependent and not readily utilized by the society [16]
11.	2006	Katherine Creath developed Measurement of bioluminescence and thermal fields from humans: Comparison of three techniques for imaging biofields. They elaborate three techniques for imaging biofields. First technique utilizes highly sensitive, low noise CCD sensitive to radiation ranges (400-1000) nm, second technique is termed as Dynamic Interferometry (DI), which is used for tracing thermal field that exists around the body and the third technique utilizes an imaging technique for measuring infrared field (IR) emitted from the biological object. A noteworthy observation was that the proposed technique is hardware dependent and economically expensive [7, 17]
12.	2011	Aura reader developed copyright software, utilizes the photographic technique. Involves scanning of the digital image, apply AR filtering technique termed as 'selective pixel manipulation' on it and reveals energy spectrum (after applying Adobe Photoshop). The remarkable observation was that although it is less hardware dependent but uses Adobe Photoshop, image-editing tools. Thus, the realization of such an editing tool brings researcher in disbelief of research [18]
13.	2015	Shreya Prakash, Anindita Roy Chowdhury, Anshu Gupta, worked on Monitoring the Human Health by Measuring the Biofield "Aura": An Overview. They had discussed the scientific techniques for capturing human aura and the symptoms of disease prior to its appearance in the human body. This is not economically productive and no benefit to the society, because it is hardware dependent and highly probable to electromagnetic interference by the environment [11, 12]

3. Methodology

Aura capturing algorithm amalgamated with the meticulous visualizing ambience that allows for visualization of light photon interfaces between the human bio-field and the light source. The algorithm works to compare the reflected rays with incident rays and the recodes them to produce an aura image. The computation perceives the intensity of light in the image and then assigns the designated value relating to colour in the visible spectrum to photons. Thus, the density differences of photons have recorded and visualized using a colour-coding technique. The light that strikes the physical surface of the object has reflected and absorbed by the body. The intensities of light are varying on and around the physical body. The proposed algorithm makes visible these differences thus, it has christened as a digital encoding technique [19].

3.1. Environment set-up

3.1.1. White colour wall

White colour never absorbs any colour rather it reflects other colours. The wall behind the subject is white in colour. To create a monochromatic environment wall should be clean and smooth. Wrinkle-free sheets or canvas can utilise for the experiments. Try to avoid capturing bio-field image near electronic gadgets.

3.1.2. Web or video camera with tripod

High definition digital camera (5 MP to 10 MP) with Firewire or USB has recommended. The camera captures the image and saves directly onto a card.

3.1.3. Full spectrum light

Full Spectrum Light (FSL) includes ultra-violet, visible and infrared energy. This spectrum dispersed a wide range of visible frequencies. Hence, from the literature, one can say with confidence that full spectrum light has a great impact on energy-field (Boyce's 1994). Single FSL of size (4.0 feet/48'') has recommended experimenting.

There is no direct relation with the environment setup (room temperature) with the human psychological state (angry, upset, etc.). Environment setup is necessary to minimize the frequency interference of electronic gadgets.

Figure 1 shows the complete setup of the working environment for the experiment.

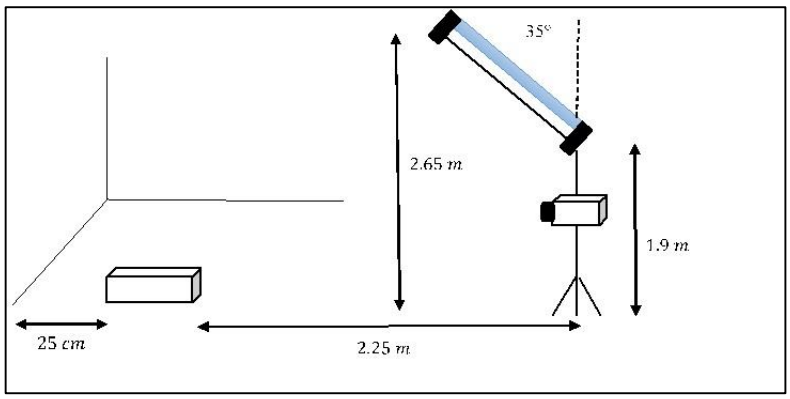

Fig. 1. Environmental set-up.

3.2. System requirements

Along with above-mentioned environmental set-up, some system related requirements are discussed in this section for the execution of proposed algorithm. Below mentioned are the system requirements:

- Operating system: Windows 7 and above
- Processor: *i*3/*i*5 and above, @ 2.00 GHz (more powerful system enable higher performance).
- Memory: 512MB RAM, 1GB free hard drive space
- USB port and graphics card

The diagram as follows showing the room set-up with measurements.

4. Aura Colourspace Visualizer: Algorithm

Once the room set-up is been done, as mentioned in the previous section, the next step is to capture an image of an object (human being). After an image is been captured, the camera is connected to the USB port of your Desktop/laptop. Image

captured is been further processed using an algorithm, to highlight the *Bio-field* of the object for further interpretations. Figure 2 illustrates the step-wise execution of Aura Colour Space Visualizer algorithm and Fig. 3 represents the overall process of the experimentation.

The complete processing of this algorithm works under three steps; firstly, image enhancement and secondly defining new colour space for visualization of bio-field and finally mapping of step one and step two. A pictorial representation, shown below, gives the more detailed working of the algorithm.

Input: Camera captured image of an object (living and non-living) in pre-requisite environment.
Output: Detect and highlight the bio-field (aura) around the object.

Start:

1. Import the captured image for further processing.
   $Orig_{img} = imread('image.JPG')$
2. Then, convert the *RGB* image to gray scale image
   $Gray_{img} = rgb2gray(Orig_{img})$
3. *Aura Colorspace Visualizer algorithm* remove the noise and normalize the brightness and contrast.
   $Gray_{img} = imadjust(Gray_{img})$
4. Resultant $Gray_{img}$ pass as an input to the proposed "*Aura Colorspace Visualizer algorithm*". In which, a separate color model designed.
5. Received output from step 4 is mapped with the $Orig_{img}$.
6. Expected output obtained.

End

Fig. 2. Step-wise execution of "aura colour space visualizer" algorithm.

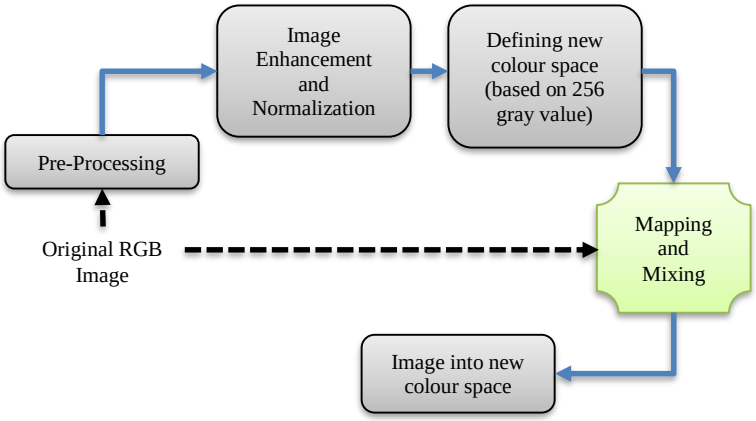

Fig. 3. Aura colourspace visualizer process diagram.

Step 1. Pre-processing

This operation is executed at the lowest level of abstraction and the aim of pre-processing is an improvement of the image data that suppresses unwanted distortion or enhances some image features important for further processing. Here, it includes two steps, as listed:

RGB to grayscale conversion

A colour image $X = (R_{i,j}, G_{i,j}, B_{i,j})^{m,n}$, where i, j = 1 and X is RGB image, can an be converted to a gray scale image $Y = Y_{i,j}{}^{m,n}$, where Y is gray scale image, Fig. 4 shows the algorithm to convert RGB to Gray-scale conversion, by anyone of the following methods:

- Set $Y_{i,j} = = MAX(R_{i,j}, G_{i,j}, B_{i,j})$ for all values of i and j
- Compute $\hat{y}_{i,j} = R_{i,j} + G_{i,j} + B_{i,j}$ for all values of i and j.
  - Transform all the values to the interval [0, 1] by setting

$$y_{i,j} = \frac{\hat{y}_{i,j}}{\max_{k,l} \hat{y}_{k,l}} \quad (1)$$

- Compute $\hat{y}_{i,j} = \sqrt{(R_{i,j})^2 + (G_{i,j})^2 + (B_{i,j})^2}$, for all values of i and j
- Transform all the values to the interval [0, 1] by setting

$$y_{i,j} = \frac{\hat{y}_{i,j}}{\max_{k,l} \hat{y}_{k,l}} \quad (2)$$

Input: RGB image
Output: Gray scale image

Start:

```
InputIMG = np.array(plt.imread('DSCN3717.jpg'))
grayIMG = rgb2gray(InputIMG)
rgb2gray(rgb):
        gray = np.array((y, x))
        for i in range(y):
           for j in range(x):
              gray[i][j]=int(round(0.2989*rgb[i][j][0]+0.5870*rgb[i][j][1]+0.1140*rgb[i][j][2]))
  return gray
```

End

Fig. 4. Algorithm to convert RGB image into gray scale image.

Removal of noise

Image denoising is required to improve image quality. Not all types of noises are additive in nature. Hereby, the assumption is that the noise intensity levels can be viewed as a random variable. With associated histogram or Probability Distribution Function (PDF) denoted by $P(r)$. The noise n is independent of image f and independent of spatial coordinated (x, y).

The Gaussian noise is a very common and additive type of noise associated with PDF given by:

$$p_{(r)} = \frac{1}{\sqrt{2\pi\sigma}} e^{-(r-\mu)^2/2\sigma^2} \quad (3)$$

where μ is the mean and σ denoted the standard deviation. Vijaykumar et al. [12] and Gonzalez and Woods [20] explained that to remove such type of noise, different types of mean filters are available to remove various types of random noises. Gaussian noise was added to the image and for removal, the following method has used:

Let g be the input noisy image, and $\hat{f}$ be the output-denoised image. Let $S(x, y)$ be the neighborhood of the pixel (x, y) defined by: $S(x, y) = \{(x+s, y+t), -a <= s <= a, -b <= t <= b\}$, of size mn, where $m = 2a + 1$ and $n = 2b+1$ are positive integers. Arithmetic mean filter is useful for removing Gaussian or uniform noise, expressed as:

$$\hat{f}(x,y) = \frac{1}{mn}\sum_{(s,t)\epsilon S(x,y)} g(s,t) \quad (4)$$

RGB to grayscale conversion is required to reduce the computation cost. As computation in RGB is more complex because it contains total 256×256×256 colours. However, grayscale has 256 colour set, which reduces the overall cost of computation. On the other hand, while capturing the image and transferring it into the system, for further processing, there may be a possibility of the addition of noise that may degrade the overall results. Hence, removal of unwanted noise is equally important.

Step 2. Image enhancement and normalization

Image enhancement and normalization are performing to improve the quality of an image. According to Shi et al. [21] and IN5D [22], sometimes, for better human visualization and image analysis. Figure 5 illustrates an algorithm for normalization and image enhancement process and it is important to enhance some features of an image for better results. Here it includes:

- Balancing contrast of an image.
- Balancing brightness of an image.

In this process, the intensity value of pixels is updated using default values, thus, improving the overall visualization of the image.

```
Input: Grayscale image
Output: Normalized image begin

grayIMG = imadjust(grayIMG)
    imadjust(src, tol=1, vin=[0,255], vout=(0,255)):
      dst = src.copy()
      tol = max(0, min(100, tol))
      if tol > 0:
# Compute in and out limits
# Histogram
        hist = np.zeros(256)
        for r in range(src.shape[0]):
          for c in range(src.shape[1]):
            hist[int(src[r,c])] += 1
        # Cumulative histogram
        cum = hist.copy()
        for i in range(1, len(hist)):
          cum[i] = cum[i - 1] + hist[i]
# Compute bounds
        total = src.shape[0] * src.shape[1]
        low_bound = total * tol / 100
        upp_bound = total * (100 - tol) / 100
        vin[0] = bisect.bisect_left(cum, low_bound)
        vin[1] = bisect.bisect_left(cum, upp_bound)
# Stretching
      scale = (vout[1] - vout[0]) / (vin[1] - vin[0])
      for r in range(dst.shape[0]):
        for c in range(dst.shape[1]):
          vs = max(src[r,c] - vin[0], 0)
          vd = min(int(vs * scale + 0.5) + vout[0], vout[1])
          dst[r,c] = vd
  return dst
End
```

Fig. 5. Algorithm for normalization and image enhancement.

Step 3. Defining new colour space

Colour space is, basically, a way to represent a group of colours. Here, a new colour space has generated along with the mapping function, which maps colours with the original image. In colour reproduction, the colour gamut is a certain complete subset of colours. The most common usage refers to the subset of colours, which can be accurately represented in the given circumstances, such as within a given colour space. In engineering of color displays and printing process, there is no device that can reproduce entire visible colour space within. For example, pure Green has expressed in RGB colour space, but it cannot be expressed in CMYK colour space. Hence, to display colours that are out of the gamut of one's colour space, there are approximation techniques for the transformation. However, none of them is truly perfect, as those colours are out of the capability of a target device.

Human bio-field's frequency is beyond the visible spectrum. Therefore, it cannot be displayed in existing colour space or colour models. Thus, to make it visualize, a new colour space is defined and mapped with the original image to get the approximate values to display it on the device. This method defines colour( ) as a new colour space based on the grayscale values of the original image.

- For example, when the gray value is lower than 72, we set the new color values to following value. That is,

mcolor((*i* - 1) * 6 + *j* , :) = [0, 0, 35];
mcolor(*i* * 6 + *j*, :) = [*i* * 10, 0, 0];
mcolor((*i* + 1) * 6 + *j*, :) = [1, 0, 35];
mcolor((*i* + 2) * 6 + *j*, :) = [*i* * 20, 0, *i* * 20];
mcolor((*i* + 3) * 6 + *j*, :) = [*i* * 10, *i* * 5, *i* * 5];
mcolor((*i* + 4) * 6 + *j*, :) = [*i* * 10, 0, *i* * 4];
j = 1,6

when value is 1~6, color is blue (*e.x.*[0, 0, 35])

when value is 7~12, color is red (*e.x.[i* * 10, 0, 0])

Step 4. Mapping and mixing

Under this process, mixes the original image and the new color values according to gray image. Get the average color value of the original image and the mcolor value according to gray images color value, then mix them accordingly.

For example:

InputIMG(*n, n1,*1) = int16((InputIMG(*n, n1*, 1) + mcolor(grayIMG(*n, n*1) + 1, 1))/1.2); % to mix *R* value of origin image and *R* value of new color for gray image.

Step 5. Image into new colour space

This will help in displaying a strong image of bio-field. Hence, those colours, which are beyond the human visual perception, are displayed on the output device.

Comparative analysis of the proposed methodology

This section as shown in Table 3, illustrates the comparative study between proposed algorithms with the existing aura capturing techniques. In this study, various parameters such as software, hardware, system setup cost, ease of use and working environment is taken into consideration.

Table 3 Comparative study between existing systems and proposed method

Parameters	Polycontrast interference photography	RFI	Aura reader	Krilian photography	Proposed methodology
Environment (static/ dynamic)	Yes	No	Yes	Yes	Yes
Ease of use	Hard	Hard	Less moderate	Moderate	Easy
Software	Yes	Yes (for interpretation and explanation)	Yes	No	Yes
Hardware	Electro scanning method	RFI™ digital frequency counter	Camera	Kirlianphotography, electronic acupuncture, biofeedback measurements	Camera
System set-up cost	Average	Expensive 850.00 US$	Expensive 1560 + 42 US $	Average 439.95 + 129.95 + 14.95 US $	Cheap

Mathematical justification of proposed algorithm for aura identification

Let us consider the Input image matrix as a matrix of the input image (RGB colour). As image size is large, thus, few 6×6 pixel values of the input image is considered just for the ease of understanding.

Let us consider rgb2gray() is the function as described in Fig. 4, which convert RGB colour matrix into a grayscale image matrix Eqs. (1) and (2). Thus, Fig. 6 represents the grayscale image matrix, which is used for further processing. This grayscale image matrix used to improve the quality of an image. Let us consider adjust() is the function as described in Table 5, which balance the contrast and brightness of an image, Eqs. (3) and (4) as shown in Fig. 7.

Aura colour space visualizer Algorithm takes normalized image matrix as an input and produce colorspace matrix. This colorspace matrix is further mapped and mixed with the original image and produce an aura matrix as an output, just for the ease of understanding, aura matrix is represented in Fig. 8.

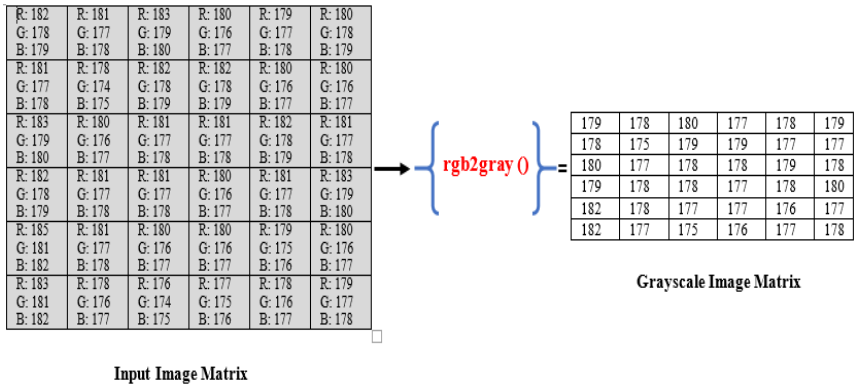

Fig. 6. Grayscale image matrix.

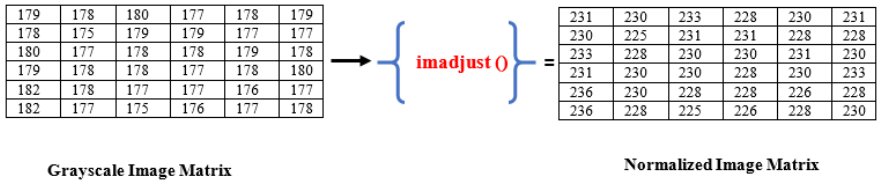

Fig. 7. Normalized image matrix.

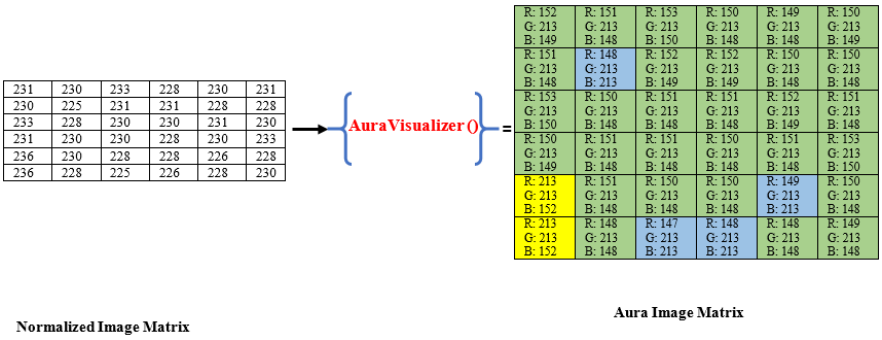

Fig. 8. Aura image matrix.

5. Discussion and Results

After the complete setup of the environment, as stated in previous sections and implementation of the algorithm, hereby few outcomes have identified. Following images shows the outcomes of the algorithm that indicated various states of an object (human being in this case). Human bio-field consists of various colour patterns and each colour have its own meaning, stating the object's health or mental state. As these images are personal and confidential, therefore very few results have shown below.

A life that gets birth in this universe originates energy. As life goes higher, it has the capability to emanate patterns of lights, which is directly associated with their experience, personalities, level of awareness and moods. The colour and lights describe a human aura contain all known colour spectrum. These colours specify dominant characteristics of an individual's such as emotional and mental state, personal power and spiritual wellbeing. Some people emanate low energy or biofield level this is due to genetic and environmental factors. Every creature emanates different patterns of aura colour. Each colour spectrums in aura have their own meaning, which has been rigorously analysed understands and delineate the life path of a person. Table 5 elaborates the basic discrimination of the aura colour spectrum [23, 24].

Nowadays, there are various techniques to determine the current state of an individual (health) such as medical diagnosis, pulse diagnosis (astrology), aura interpretation, etc., [25-28]. The current focus of this work is on aura identification and its interpretation. The proposed methodology is used to determine the present state of mind of an individual. Based on studies by Notte et al. [29], which further help for healing with meditation, yoga and reki therapy.

Thus, Fig. 3 reveals the individual initial mental state, emotional state, spiritual wellbeing and personal power.

Before interpreting, one must know about chakras. Chakra is the centre of energy that moves inside a human being. This energy has seven focal points responsible for providing an exact amount of energy to every part of the human body. Figure 9 shows the location of seven chakras in the human body with naming conventions. Figure 9 represents the reference image for the interpretation and Fig. 10 displays the results obtained after the experimentation. Further, obtained results are explained in Fig. 11.

The interpretations observed was shared with the person. After interviewing and medical examination (for verification), the results obtained was approximately equivalent as per aura interpretation. The person was advised to go for some medical treatment or some other therapy like acupressure, yoga, etc., and come back for re-examination after a week. Hence, the same procedure was followed and obtained a result as shown in Fig. 12. Every person exhibits aura colour based on its emotion, stress, trouble, etc., it not possible that a person only exhibits one aura colour. It cannot be possible to categorize aura colour distinctly in negative and positive aspects. Understanding and interpreting stress reactions, emotions, mental fixations and physical sensation is important for personal awareness. Figure 13 shows the improvements in human aura after performing the acupressure therapy on the individual.

Table 4. Colour interpretations.

Colour	Interpretations
Indigo and blue	• Peaceful • Strong • Intuitive and interactive • Disciplined • Strong sensory ability
Green	• Possess perfect balance between relationships, health and mental security • Good health and natural healers
Yellow	• Intelligent, logical and analytical • Shines in the field of philosophical, teaching, scientist and inventors • Always happy, self-lovers and never feel loneliness • Great communicators and highly expressive in front of huge crowd
Orange	• Colour orange in your aura relates to reproductive organs, sexual health, sexual desires, creativity and emotions • Orange is the colour of vitality, excitement and outgoing social nature • People with orange colour aura loves to be the centre of attraction or just another face in the crowd • Symbolizes people with good athletics skills and are popular in the field of personal concert
Red	• Red colour has closely related to the physical body. Usually deeper the red more grounded, energetic, passionate you are • The deeper red is more powerful, strong and realistic • People generally act aggressively • Strong primal passion
Pink	• The pink colour indicates negative characteristics of a person like weak, helpless, fear and stricken in love relationship
Purple	• The deeper purple is closer to spiritual freedom

	• People of purple colour .aura is natural, divine and involves in spiritual and meditative activities
Gold	• People of gold colour aura are joyful in nature • They are lucky and abundant • They possess a love-hate relationship • They inspire others and attract others by their warm optimistic and happy nature
White	• Strong spiritual awareness • Possess best focus in life • Peace loving and balancing
Brown/Black	• People with black colour aura indicates personalities that struggles • This colour of aura highly misunderstood as negative due to the individuals' physical ailment, fear and worry • They used to over thinking in minor situations • Earthy auras indicate personalities that struggle with logical and methodical aspects of life

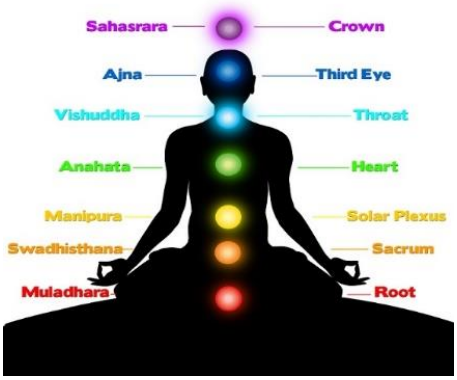

Fig. 9. Chakras representation.

Source: http://foodnhealth.org/type-of-chakras-in-our-body-spiritual-way-to-meet-god/

Fig. 10. Initial aura colourspace representation.

	**Interpretation:** **Sahasrara Chakra:** the colour at Sahasrara Chakra is green, this indicates that the person having a perfect balance between mental security and relationship. **Ajna Chakra:** the colour at Ajna Chakra is pink, yellow and green that indicates that the person having fear, intelligent, having high analytical skills and brain and eye's health is perfect. **Vishudha Chakra:** the colour at Vishudha Chakra is pink, this indicates that the person is weak. This is not a good sign; the person may suffer from throat related diseases. **Anahata and Manipura Chakra:** the colour at Anahata Chakra is yellow this indicates that the person is self-lover, never feels loneliness and have good analytical and logical thinking.

Fig. 11. Initial representation analysis of an individual.

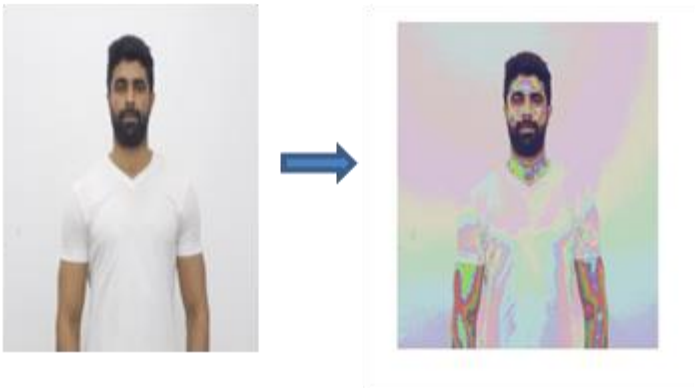

Fig. 12. Aura representation of an individual after acupressure.

	**Interpretations** **Sahasara Chakra:** the colour at Sahasara Chakra is green, this indicates that the person having a perfect balance between mental security and relationship. **Ajna Chakra:** the colour at Ajna Chakra is blue, purple, red and yellow, this indicates that the person is strong, intuitive, strong, involves in spiritual and meditation. This is a good sign. **Vishudha Chakra:** the colour at Vishudha Chakra is blue, purple, green and yellow, this indicates that the person's throat is healthy because green and purple colour specifies healthiness. **Anahata and Manipura Chakra:** the colour at Anahata Chakra is yellow and green this indicates that the person is self-lover, never feels loneliness and have good analytical and logical thinking. After performing the same procedure, the person was examined and the interpretation obtained in this phase was quite different as compared to the previous experiment. This time, after medication and therapy, the person's aura was quite healthy and shows positive energy around the body.

Fig. 13. Aura interpretation after acupressure therapy.

6. Conclusion

After performing the above experiment few conclusions derived are:

- Obtaining information about human bio-field indicated the energy balance within an individual.
- An individual may help him/her in solving various health issues.
- Understanding self-mental health.
- This also opens up the door to new research areas in the field of healthcare informatics.
- Also, use this data to analyse people's mentality, future health issues, compatibility with others, reaction to the situations and many more.

There is still a lot many scopes of enhancement is required in the present research results, hence, one can apply machine learning or artificial intelligence techniques for the same. As study also states that, every individual owns unique bio-field, hence, advanced computation techniques, like deep learning, can be used to study features and characteristics of human bio-field to identify the uniqueness property.

Nomenclatures

X	RGB image
Ri,j	Pixel value of Red Color
Gi,j	Pixel value of Green Colour
Bi,j	Pixel value of Blue Colour
$\hat{y}i,j$	Total intensity of an original image
$\hat{y}_{k,l}$	Total intensity of a grey scale image
$P(r)$	Histogram or probability distribution function.
G	Input noisy image
$\hat{f}$	Output denoised image

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