

Advance Smart Room Concept for Next Generation

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Abstract—The present study is intended to find a new concept for the next generation smart room. This is able to provide almost total satisfaction for the customer's needs. Smart room concept started from recent past with connecting networking devices and which use for day to day life with purpose of enhance the life style of the people. Qualitative research method is applied for this study. New innovative findings are adding to the human lifestyle unbelievable love and its affect to the day to day activities of the common people. Obviously it is understood that, most of the people unable to manage available time due to complexity of the in hand work which have to complete within the short period of time. With that, within the short period of time it is required to obtain maximum productivity or desires goals and objectives. This empirical study is exploring new dimension of smart room concept with integration of human body mechanism and emotions. As per the requirements of client, changing various surrounding environment which effect human with stimulating various hormone in the body its cause to achieve or fulfil the various requirement of client. In this new concept human body also act as a machine with effect of technology and surrounding. The implications of the smart room concept are of paramount importance for the architectural designs of the next generation. This solely new concept would be a challenge to be incorporated into the modern day designs and it would transcend a mere design by taking the occupant in to the realm of human emotions while quenching his overwhelming feelings.

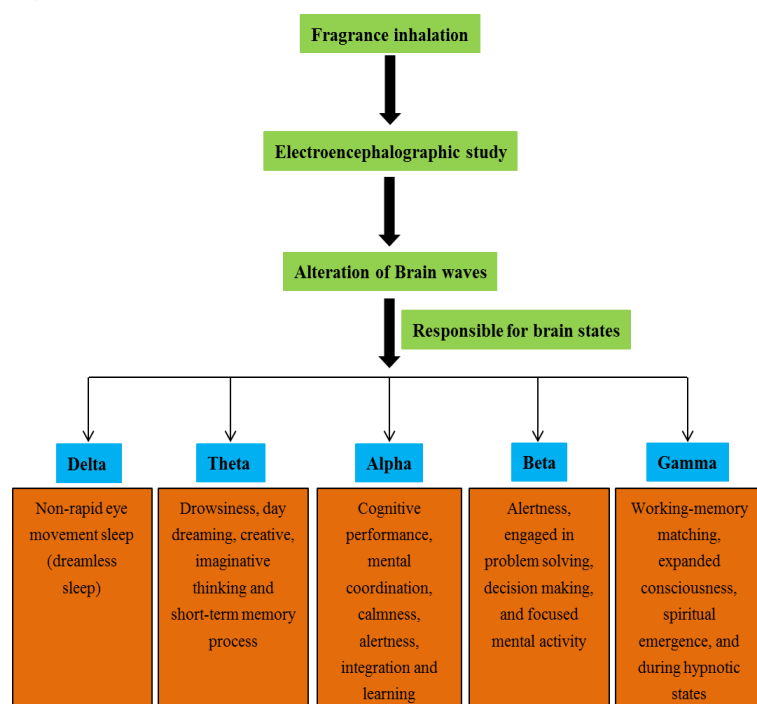
Keywords— human body mechanism and emotions, Smart room, Surrounding environment, hormone

i. Introduction

Smart room concept is one of the most affective technological trends within the today context of technology. According to the modern technology trends present smart room concept provides a connected tablet to adjust light ,music, close curtains lilt the bedroom beds' headboard and control audio-visual equipment's. Further some smart room provide sleeping aids including head bond with integrated brain energy sensors and relation systems and use some aroma oil for fulfil few requirements of customer. In the recent research found that with changes of Aroma types the brain mechanisms

are changing and it was found that type of brain wave are emitting after inhaling deferent types of aroma oil. Figure 1 shows bran waves types and its affect to the human body and mind [1]

Figure 1. Brain waves and there function



Source: <https://doi.org/10.3390/scipharm84040724>

Expansion of human needs and limited time available in hand to compile more complex today to day affairs of the people it is required to new method to overcome the unrest situation. As per the resources available in the smart room concepts, didn't address the fulfilments of psychological needs and physical needs further human being activities and human body mechanism have not been intergraded with in the inside smart room environment. Within the society there are deferent age groups as well as the gender of the people, farther, each individual has deferent types of requirements need to full fill, in this new smart room concept are able to provide or full fill the most of the requirement as each individuals wish. Integration of body mechanism with this new Smart Room concept are able to obtain more productive output or result for the day to day activities or affairs of human being and better life style. According to the Buddhist

philosophy, nose, eyes and ears are the more influential organs of the human behaviour. In this new concept of the smart room is use of eyes, ears and nose for changing the body activities and to obtain desire results. Further, feeling of the skin also somewhat use for obtain results. Most importantly, this new smart room concept able to use as a medicine treatment of some kind of sickness such as aromatherapy [2],[3],[4] sound therapy [5] and light therapy [6].

ii. Significant of study

Today smart room concept design to provide or able to provide limited type of requirements of the human being. None of the study or concept, has not founded integration of human body functions with environments of smart room to obtain better output or full fill the most of the requirements of the people

iii Research methodology

The present study would be a qualitative analysis. It would depend on library based survey to gather information and details to smart room concepts by the various researchers. That information would be collected and reviewed against the literature available. Hence, this study has been carried out mainly through literature survey articles, papers published in peer – reviewed journals, books, newspapers and online media were read to extract information needed to understand various factors of the smart room concepts.

iv Limitations of the study

Primary officially in carrying out the study not been found the lack of application of smart rooms modern techniques. It was difficult to conduct personal interviews lack of experiences of modern smart room expertise it paring the way limiting a quality output. Lack of literature available in related topic also affects the research.

v Literature review

Papers from peer– reviewed journals, magazines, reports, online articles; books articles published by scholars, analysts and writers contributing to various perspectives would be reviewed to delineate various concept and improvements of smart room concepts and changes of psychological and physical behaviours of human being with created deferent type of inside room environment in smart room.

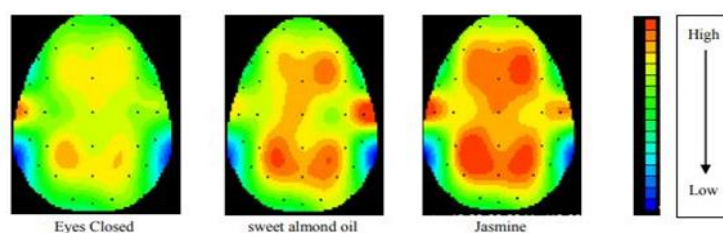
vi How to aroma smells work in the body

The word “aroma”, means fragrance or smell. Aroma Smell is a natural way of changing persons’ mind, body function and emotions [7]. The aroma oil have extract from leaves, flowers fruits, and roots resins etc. According to historical evidence aroma oil has use

civilizations of Egypt, Chinese and Indian for complementary and alternative therapy more than thousands of years.[9]Olfactory nerves from nose to the brains limbic area are the site of action for these aroma oils on reviewing the literature. On this function of aroma oil, it is found that numerous studies have been carried out to study the effect of this smell and oils on human brain and its function. For an example Lavenders essential oil consist of linafyl acetate and B- Linalool [10],[11]. It was found that individuals felt more relaxed and an improved mood after inhaling Lavender oil [10]. Moreover, human brains’ mid frontal (Figure 1) alpha power was increase after inhaled of the lavender oil.

As per the research has conducted by Health Science Group, chulalongkarn University[12] found that there are significant increase of Beta (13 – 30Hz) brain wave activity after inhaled sweet almond jasmine oil and they observed that there are no significant change of Alpha 1 (8 – 10.99 Hz) and Alpha 2 (11-12.99Hz) in the all brain regions. Further, considering emotional status responses, after inhaling jasmine oil, it is observed that significantly increasing of positive emotion such as feeling of wellbeing, fresh, romance and active. Furthermore, it is significantly reduced negative emotion like feeling of drowsy. Figure 2 shows Brain Topographical map of the distribution of beta brain wave activity after inhaled sweet almond oil and jasmine oil , the red areas indicated significant increase in power.

Figure 2: Brain Topographical map of the distribution of beta brain wave



Source: The Source: effects of jasmine Oil inhalation on brain wave activities and emotions. J Health Res vol, 27(2).

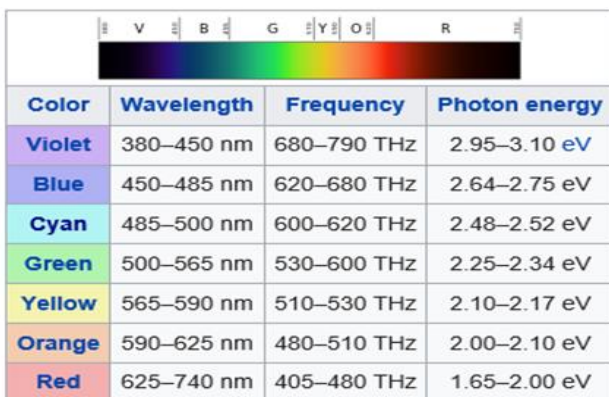
Aroma oil fragrances are able to enhance the oxygen level of the brain up to considerable percentage. Hypothalamus and limbic systems of the brain are highly sensitive of level of oxygen of course to dramatic improvements of effect of emotions, learning, attitude hormone balance, energy level and immune functions. The versatile character of aroma oil is able to act as a immune booster body with hormonal, glandular emotional circulatory, calming effect, memory and alertness enhancer,[13]. Limbic area of the brain are directly deals with or control with breathing, stress level, heat rate, memory hormone balance of the human body

that mean limbic center of the brain is functioning as a controller of the individuals for physical activities, psychological functions emotional responses that individual body performs on stimulus coming from the outside. According to that are able to make powerful tool for the controlling human body and function. The mechanism of aroma oil is action in valves integration of essential oils in to a biological signal of the receptor cell in the nose when inhaled. Since aroma oil chemical properties chemical manage in the nasal cavity has direct access to the brain. The signal transmitted to limbic and hypothalamus parts of the brain via olfactory bulb. These signals cause brain to release neuron messages to link our nerves and other body systems assuring a desired changing and to provides a feeling of relief emotion etc. so the oil able to use for medical aromatherapy , olfactory aromatherapy , psycho – aroma therapy.

Vii How to colour of light effect to human functions

The visible range of the light or visible spectrum is a part of the electromagnetic spectrum Human eye is respond to 380 nm to 740 nm in terms of frequency. Narrow bond of wave length created colours within visible range. (Pure Spectral Colour)

Figure 3: Colour spectrum of visible light



Color	Wavelength	Frequency	Photon energy
Violet	380–450 nm	680–790 THz	2.95–3.10 eV
Blue	450–485 nm	620–680 THz	2.64–2.75 eV
Cyan	485–500 nm	600–620 THz	2.48–2.52 eV
Green	500–565 nm	530–600 THz	2.25–2.34 eV
Yellow	565–590 nm	510–530 THz	2.10–2.17 eV
Orange	590–625 nm	480–510 THz	2.00–2.10 eV
Red	625–740 nm	405–480 THz	1.65–2.00 eV

Basically colour divided in to cool colour (Blue, Green, and Purple etc.) and warm colour (red, orange, yellow etc.) Furthermore, each wave length of visible light crate deferent effect on human eyes and brain

According to the architectural designs colour is seen on the highly impatient part for change the characteristic of the environmental and dominantly visible. Its given special feelings of space, depth etc.

The influence of light on the human being’s biorhythms: in fact, human life is marked by the alternation of night/day, dark/light, sleep/wake and work/rest rhythms (or circadian rhythms).Considering to light intensity, refractive index and wavelength of the electromagnetic

radiation emitted by a light source, light determines the colour perception of the objects inside a lit environment, influencing the mood and behaviour of people exposed,[14]. Further, colour is also useful in influencing human behaviours decision making, health and much more with or without realization. Basically changes of interior areas detected by human eye are affected changes of human behaviour. Lot of academic publications were publishes a board range of studies that discuss the effect of light, as well as the influence of colures light. Waves in respect to human response, As per the research proved that lighting influences affect to the or associated with the circadian rhythm further changes in light – dark exposure can desynchronize the circadian cycle affecting the ability to sleep and wake. (As well as impacting on psychological and metabolic processes. Light has an effect on the human neuroendocrine system – suppress. According to the researchers have identified that, certain wavelengths of light may have specific impacts. For an example short wavelength light sensitive for circadian system [15], [16] (*20)

According to the Kwallek and Lewis (1990).[17] found that red light has the most arousal effects which has caused to less error made on certain task although it is highly related as distracting. As per the study of Kamaruzzaman and Zawawi (2010),[18] proved that blue light or Colour has the most aroused effects and has the highest rating for performing environment. According to Knez, I. (2001); Stone 2003,[19] and Dalke et al, 2005,[20] research founded that blue and gray colors reduce the attention or consecration. Further Blue light also have an effect of drowsy and sleep,[21].

Light is the primary influential source for stimulates for regulating circadian rhythms, seasonal cycle and neuroendocrine responses in humans and many species [22]

Man lusher (1969),[23], who deals with for basic colours orange, red, bright yellow, blue – green and dark blue; and four auxiliary colours such as violet, brown, black and natural grey and he found there are some specific affective characteristics to each colour. According his research he found that “Red colour has stimulating effect on the nervous system. Blood pressure increase, respiration rate and heartbeat both speed up. Blue colour has the reverse effect blood pressure falls, heart beat and breathing both slowdown,[24]. Rewell C, (2007),[25], given extended description about human being response to colour as per his finding “Babies cry more in yellow rooms”. Tension increase in people in yellow room and people who drive yellow car are more prone to become aggravating in heavy traffic. Spend time has speed up and a reflection of yellow indicates a fear of change. Colour

effect physiological condition of human brain indicated as Fig 4:

Figure 4: Color Psychology



Source: Author

Viii How affect Sound / Music to body function.

Music is capable of evoking exceptionally strong emotions and of reliability affecting the mood of individuals. The romance drew on philosophical beliefs and powers of music. Alexander the great believed that music created inspiration and energy in his soldiers. He made music to arouse his armies to wages war against the enemy and to relax them after a long, hard thought battle,[27]. Music commonly called universal language so music is capable of evoking emotions,[28]. Further Van Goethem, A. and Sloboda, J., (2011),[29] mentioned that people consciously and unconsciously use music to change create, maintain or enhance their emotions and moods on a daily basis for their personal benefit. Thayer, Newman and MC Clain (1994),[30], found that listening to music is the second most use device for changing a bad mood, raising energy and reducing tension. Further, found that individuals choose listen to music as background to other activities, more appreciation or rhythmic accompaniment,[31].

Further in 1995 has published a paper by Frances Rauscher, Gordon show, and Katherine Key,[32] to discover whether certain type of music able to increased cognitive ability. According to their result it was found that the group who listened to a Mozart piano sonata 2 (Specifically Mozart's' Sonata for two pianos in D Major) Obtain significantly higher results than other group, after lasting ten to fifteen minutes of time.

The human brain is divided into the hemispheres, simply referred to as the right and left hemispheres. As per the previous researchers found that, both side of the brain are used to listen to music. It proved that sound enters the ears it goes to the auditory cortex in the temporal lobe. Music is capable of processing influences the limbic system, which is the centre of emotions, sensations, and feelings. Researchers in brain anatomy have hypothesized that music brings about the psychological effect on the brain as a result of the vibratory motion that moves through the auditory cortex directly to the limbic system. Through the limbic system, music has the ability to bring about a broad range of powerful and very specific emotional conditions. The specific emotional conditions elicited by listening to music cause changes in the cardiovascular, neuroendocrine, and immune system. Music also has the capability to alter moods by making the listener, happy, sad, excited, jovial, gloomy, stimulated, rejuvenated or invigorated. The power of music can change moods both consciously and unconsciously. Melody is the most conscious element of music as it produces a concrete pattern allowing the listeners to sing or hum along. These conscious modification of moods by music. Music occurs at the cortical level by rousing the imagination and intellectual centres of the brain (Loole, 1981) Rhythm is the most unconscious element of music and its basic, dynamic, and driving factors that stimulated action (Gaston, 1951) The unconscious change in mood induced by music is stimulated by- an autonomic response in the limbic system. Consistent rhythm given a secure feeling while inconsistent rhythm commands attention and creates apprehension. Music consisting mostly of brass, percussion, electronic sounds and bass is often associated with feeling of unrest, heightened energy and increase strength, [33]

Experiencing music is a complex process; music is believed to have many different effects on the human body when the ear perceives a mustered sound. Almost anyone can appreciate the effect of music on an individual's mood as most individuals have been influenced by it. Because natural rhythms of the human body are intrinsic, the human brain can be entrained to match the rhythm of the music. Through a gradual change in the rhythm of the music, a steady entertainment can be achieved to bring an individual from an emotional state into another emotional state. This manoeuvre is known as the iso-principle, which is when an individual's mood is matched to the mood of the music and then gradually moved into a desired direction,[34] The normal, healthy human beat typically beats at approximately 70-80 beats per minute. When individuals are exposed to music with a tempo in excess of their own

inherent heart beats, that music with a tempo effect to enhance the general mood,[35]. Entertainment accounts for changed in brain waves, heart rhythms, respirations, emotional tones, timing, pacing and other organic rhythms of the human body according to music rhythms,[36].According to the effect of music , music captures the attention of the individual by shifting attention away from something that is stressful to a more positive stimulates .It is influence of the state of mind that is believed to influence the physiologic responses. Further,

Due to music change people moods and emotional states of appears that the psychological response of the human body depend on the psychological response of the individual,[37]. Emotion affects the autonomic nervous system, which preside over the functions of the cardiac muscle, smooth muscle, and specific glands of the human body. Accordingly the sympathetic system stimulates the cardiovascular respiratory, neuroendocrine systems and suppresses the immune system while the parasympathetic system slows down the cardiovascular, respiratory neuroendricrine system and boosts the immune system. The two systems work together to maintain a relatively balance functioning body (Mc Craty el al; 1998)

ix Systems Integration of Smart Room.

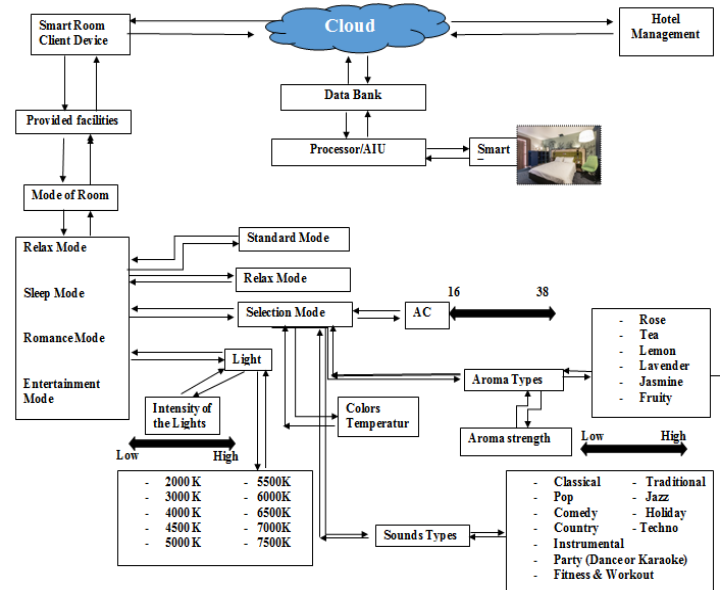
System integration is one of most important part of the in this newly design smart room concept. Due to change of single function of the smart room created total deferent environment what required for smart room client hence customized and secure system highly essential for the in this advance smart room concept.

x Functions and real-time Activation of the System

Smart room function activated when the client requested smart room login from service provider or facility provider through web interface. After verification of customer identity and submitted required details service provider send password of the respective smart room, most importantly provide password highly customized even facility provider also unaware about the password given to customer. Client login into smart room space, automatically the system originated a massage and send to the service provider with indicating of respective smart room space is activated. After login into smart room space, clients are able to control all the functions and services remotely as his wish or requirements. The user is entering to the smart room space, control pages of the devices on which he click for each activity plug-in of various functions and confirm it. As per the data has been injected by the client smart room processor and artificial

intelligence unit automatically activate function of smart room as per the client arrival time. For a example, client reach to the reception table, all document are ready to sing and when service provider issue the door open card to customer automatically activated automated smart room system and create smart room environment as customer request such as lighting, smell, Temperature, music ect. Basic model of Computing and Web application as indicated Figure: 5 shows basic block diagram of the smart room integrate system.

Figure 5: Block diagram of system



Source: Authour

In the present day context, cloud technology is suing most of web applications. According to today advance features of the cloud technology,[38] or facility available, this can easily use a online web applications as well as its possible to customizable and multi tenancy task. Cloud service able to access anytime and anywhere with its special features this Architecture is basically base on cloud computing web applications. This application able to use of Reading of sensors, Storing, communications, transfer command to AIU or processor, are the main features which required for this system and web design over the Internet most importantly the enhance the use friendliness and feasibility which select the web application including simple to use, scalable to services requirements, feasibility interface and has built-in data store app engine platform [39].

This smart room web application is cauterized into two main parts: Front-End and Black-End. Front-End section services as a smart room client interacting with the services provider and provide necessary details and commands to the Bata base and AIU. Black-End section services as computing services for logic processing,

monitoring and activate the necessary activities on real time further this system use M2M system with are functioning with AIU and Smart equipment's. Due to that the Autonomous processor, smart sensors, actuators and devices activated as per the injected commands with or without human intervention [1][2]

xi Discussion

The ultimate finding that the researcher unveils through this research is that the appealing to psychological physical and kinaesthetic senses should be an integral part of the smart room concept for a quality architectural design of such establishment. In fact, human life is marked by the alternation of night/day, dark/light, sleep/wake and work/rest rhythms (or circadian rhythms). As per Veitch & Newsham, 1998; Boyce et al., 1998 indicated that, light intensity, refractive index and wavelength of the electromagnetic radiation emitted by a light source, light determines the colour perception of the objects inside a lit environment, influencing the mood and behaviour of people exposed (). Further, colour is also useful in influencing human behaviour decision making, health and much more with or without realization.

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So is aroma, the limbic area of the brain are directly deals with or control with breathing, stress level, heat rate, memory hormone balance of the human body that mean limbic canter of the brain is functioning as a controller of the individuals for physical activities, psychological functions emotional responses that individual body performs on stimulus coming from the outside. According to that are able to make powerful tool for the controlling human body and function.

Therefore, as demonstrated by this empirical study what is conspicuously evident is that the modern-day smart room concept should be compilation of all these factors, whereas the technical factors are the most essential attributes of the architectural design of this concept. The word 'smart' does not connote that it is fully-fledged in technical sense, yet the design should be smart enough to correspond to the human senses concerned.

xii Conclusion

In this scholarly review, it is evident that better quality of living stand is able to achieve by using various tools of web applications or interaction of technology and smart room appliances. However advancements in the fields of smart room are not isolated case, it is inextricably linked with a wider scope of psychological factors. Human beings basically act according to their emotions, physiological needs, and psychological stimulus. As deemed by the previous researches and literature does not found human body function or emotions integration with smart room concepts. Accordingly, buddies philosophy, human body react the surrounding changes through obtain signals created by the sensing organs of the human body. Thereby, it is highly likely that change of human beings' psychological scenarios are susceptible to the changes in the surrounding. In this research paper, the researcher introduced a new concept for the modern smart room concept with integration of human body mechanism, surrounding/environment, and modem web applications. This research address to third sense of dimensions like emotional nuances. Most importantly this concept could be developed to provide some treatment for certain ailments of the people concerned

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