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University of Applied Sciences
Degree Programmed in Design

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EMOTION DESIGN OF AN ICONIC (VOLKSWAGEN) CAMPERVAN

Bachelor's Thesis
May, 2014

ABSTRACT

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KAGALI, LINUS BONIPHACE	Emotion Design of an Iconic (Volkswagen) Campervan
Bachelor's Thesis	76 pages
Supervisor	Jan Kettula, Senior Lecturer
Commissioned by	Pennanen Design Oy
Proposed for	Volkswagen Group
May, 2014	
Keywords	automotive design, golden ratio, aesthetics, emotion.

This research looks into the thinking and the process of re-design a piece of automotive icon, the Volkswagen campervan known as T1 or microbus. The campervan re-designed with new visual language, and emotions. The re-designed campervan is intended for the new generation of campers and outdoor seekers, a generation of tech savvy people in a world which is rapidly and gradually changing.

The need of understanding the relationship between design and emotions fuelled this design project, based on the ancient wisdom which dictates this; - "In order to understand the *mundane,* use the known to understand the unknown." These same ancient principles applied to this design research by looked into nature's brilliant designs, and so what can be observed from the nature is of great importance.

The conclusion is based on art, technology, philosophy, psychology culture and design. Emotion and motivation are so deeply connected, especially when it comes to human behavior of liking and disliking a particular product. Influenced by emotions or motivation, a person may like or dislike a particular product over another is purely based on either one of the mentioned factors. It is obvious that, the role of emotion is beyond object's function. The final product concept presented in this work needs further developments and refinements in the details.

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1 INTRODUCTION

1.1 Problem statement

In the 21st century society demands and requires mobile lifestyle more than ever before. Re-designing of an iconic campervan can not only address the issue of mobility to suit modern time but can also create a new life style for people who need freedom of movement, and for those who want to be able to operate in a free environment out of traditional homes and offices. It has been a dream to have a career in mobility and transportation industry, and this will be a perfect point to start. Creating emotions of the Volkswagen Campervan will focus on styling and automotive static emotion. There is a room for improvement in, aesthetics, functions, branding, ergonomics, manufacturing, ownership and affordability.

1.2 Design brief

Brief of the project was to research and understand the emotion factors related to design and how to implement into automotive design. Re-designing of an iconic campervan has been a challenging process. What was needed to be achieved during the process is to capture the imagination of new campers and Volkswagen fans especially in the new markets of world's emerging economies where the new tech savvy middle class is on the rise.

1.3 Design aims and objectives

Emotional designing of Volkswagen campervan focused on design emotions, styling and aesthetics. Process was carried out through detailed research and sketching process which looked into different ways of trying to recreate the iconic products static emotions. Creation of a new product can easily be achieved only by focusing on the needs of new customers from developing economies of Far East, Africa, Middle East and Latin America where Volkswagen brand has got an excellent reputation for being innovative. Investing in these new economies should be considered as an opportunity, especially in this changing world where purchasing power, has been shifting towards new economies.

1.4 Volkswagen campervans product history

Volkswagen campervan is an Iconic piece of engineering, which conceived in 1947 by a Dutch Volkswagen importer called Ben Pon during his visit to the manufacturer's Wolfsburg factory in Germany. He got inspired by the sight of workers using stripped-down Beetles to transport car parts around the vast production facility, he roughed out a sketch for a van later described as "a box on the wheel" (Volkswagen, 2011) as can be seen in Figure 1 below.

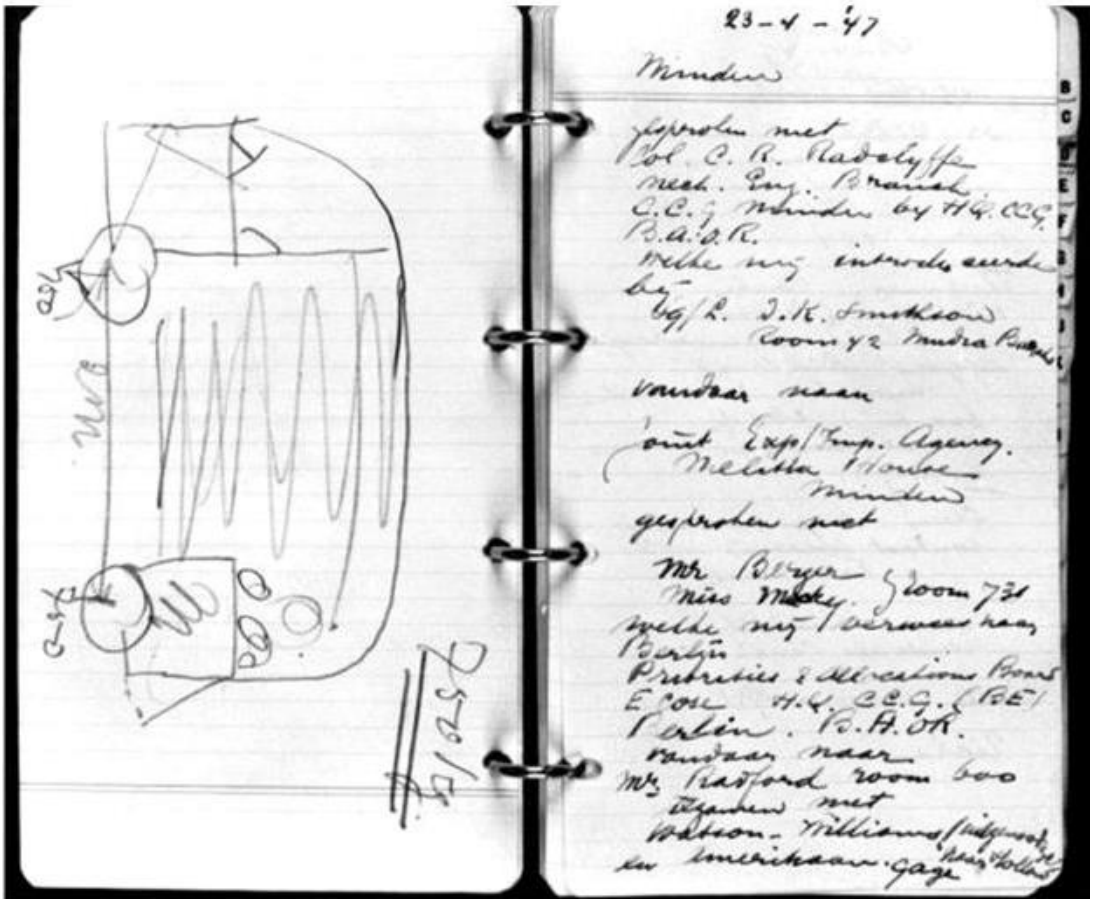

Figure 1. The 1947 Volkswagen Van Sketch. (Volkyland, 2011)

Since model T1's conception, there have been more than 90 versions from bus, ice-cream vans, and fire engines and so on as shown in Figure 2.

Figure 2. The story of Van. (Volkswagen, 2011, pp.4-5)

In 1949, the original version T1, created with little glamour, somehow quickly won an affectionate following that survives to this day. In 1951 caravan maker Westfalia briefed to create a Bulli with home furnishings', and the most familiar one was born. (Volkswagen, 2011, p.3). Still to this day it is about mobility, personalization and effectiveness offered by the designed campervan that was crucial for T1's success.

2 RESEARCH

Research was conducted to establish and identify the need for creating a campervan. An initial idea was to create a mobile home, where people are able to move freely without been restricted to their apartments or offices and still have all the conveniences needed. Main idea was to make personal life and business mobile and comfortable. Traditional notion of office or home is changing.

The challenge for this project has been on how to create a campervan from its original look and make it modern. Many more questions needed answers. Number of things came up which were kept in consideration during design process. During the research process, it was clear that, in order to make a campervan modern it needs improvements on styling, aesthetics, functions, rebranding, facilities and ergonomics. These points are the key to the whole idea of redesigning of the new Iconic Volkswagen Campervan.

Research question was how emotional design is implemented in automotive (product) design. The following research methodologies were used based on design knowledge; data on scientific research, information on cognitive psychology and practical experience.

2.1 Secondary research

New demands from user experience and resource sustainability are changing the design industry. Other challenges come from material technologies, forms, functions and manufacturing methods. Automotives need to be aerodynamic, lightweight, economical fuel consumption, and a car must provide enough space, must have attractive shapes and still must look fabulous. Internet is a valuable resource for doing this research. Focus was on making noteworthy considerations on how to transform an Iconic Campervan to follow gradual changes and continuity. Launching of new and fresh styles at regular interval requires a special attention.

Volkswagen formula is to breed brand recognition and technical innovations that inspire interest. Radical looks and revolutionary changes of style may generate instant excitement, but the steady step by step development of a strong basic design is the best strategy for building up long term brand values and customer loyalty.

2.2 Multi disciplinary approach to research in design

Maslow's hierarchy of needs (Huitt, 2007) deals with human needs that are crucial for personal development, self-actualization and motivation. Figure 3 and 4 below show the complex mechanisms at work when one decides to choose one product over another. The top part (Figure 3) of the second pyramid deals with emotions and aesthetics compared to the bottom part of the pyramid that deals with functions.

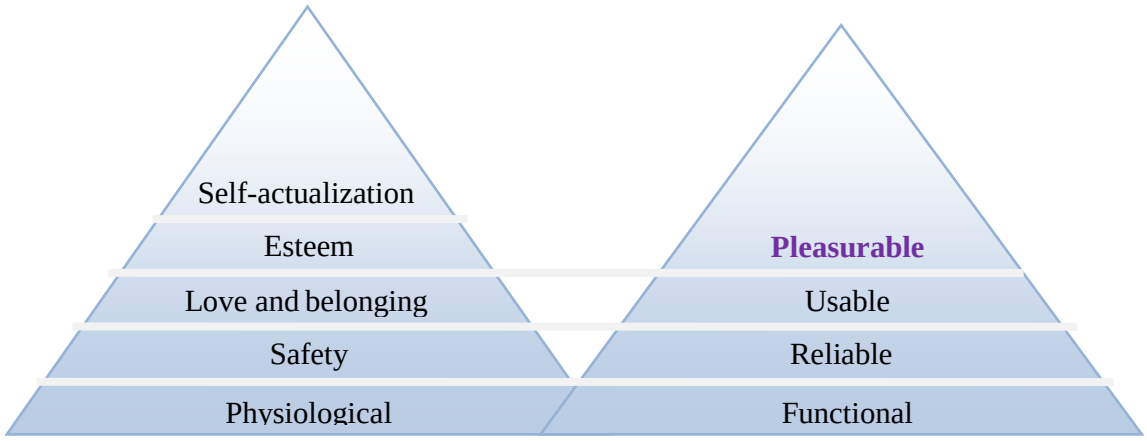

Figure 3. Comparison of Maslow's hierarchy of need and people's increasing products needs (Yefan, 2012)

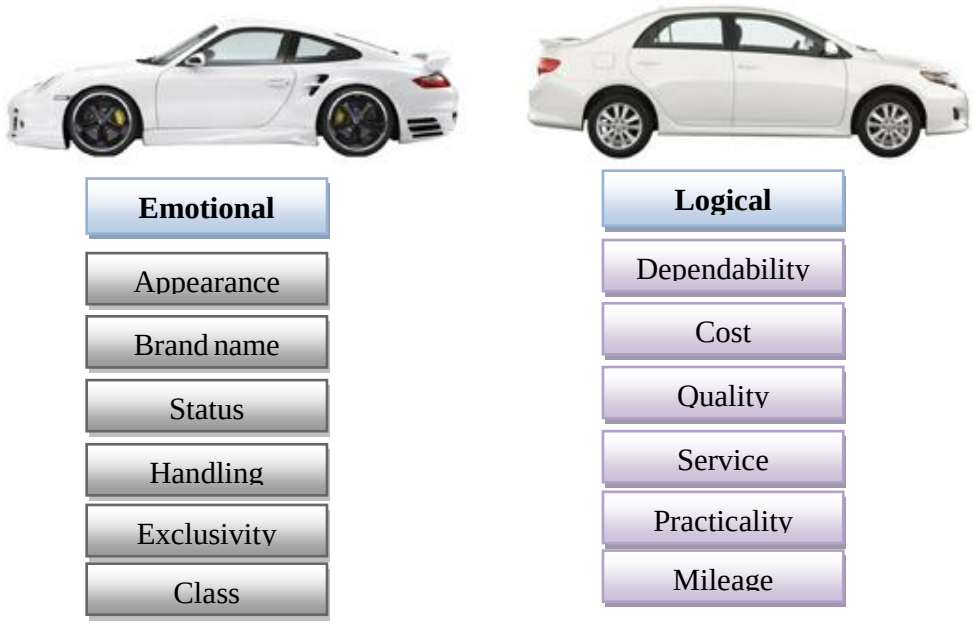

Figure 4. Complexity of decision making when buying a car (Agco, 2014)

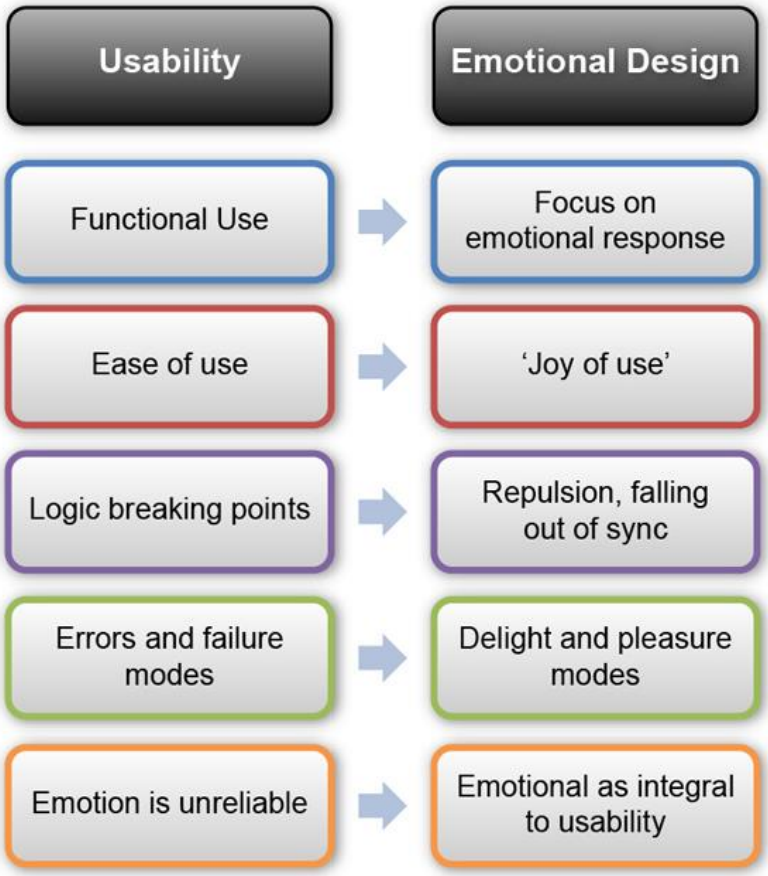

Figure 5. Emotional design compared to Usability (Anum, 2012

2.3 Design principles

Main fundamental skills needed in design works are perspective, value, form, composition, details and space. According to **Dieter Rams'** design principles which states that, good design is**:-**

- Innovative
- Aesthetic
- Useful
- Understandable
- Honest
- Long- lasting
- Thorough down to last detail
- Environmentally friendly
- as little design as possible. (Rams, 2013)

According to Dieter Rams, to create is to think by using hands, senses and brain. Design is visual. Visual elements like lines, dots, surfaces and forms are the key to good design. Depending on how visual elements are placed is important for designers to think about their immediate emotional effect which a visual element creates. Don Norman's research on user-centered (Graup, 2010) design outlines qualities that affecting human cognitive psychology, which are behavioral, reflective and visceral as underlying factors affecting emotions.

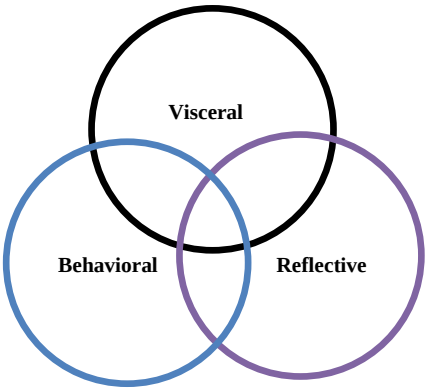

Figure 6. Elements of Great Communication + Design (Graup, 2010)

Visceral

- Immediate reaction
- look
- feel
- first impression

Behavioral

- actual using
- usability problems
- interaction

Reflective

- Reflecting
- Social
- Expecting

2.4 Ancient Symbols are key to Design

Conducting this research has been a process of professional and personal growth. It has included key areas of interest for any designer. The areas of interest are important during the design process. The areas that have influenced this work are across disciplines and professions. The task has been multi disciplined and has required the understanding of psychology, philosophy, art, design, history, technological advancement, marketing, financing and culture. Leonardo da Vinci understood this complexity and can be referenced as a great artist and engineer of all time together with Imhotep as the master craftsman.

Figure 7. Winged disk. (Max, 2011)

Figure 8. Yin Yang symbol of duality and balance (Baranek, 2011)

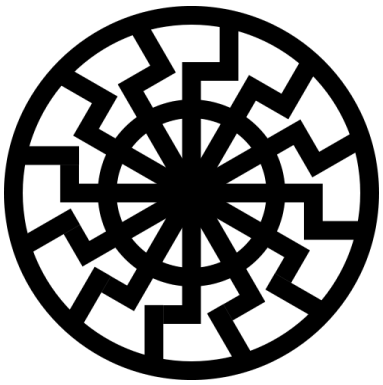

Figure 9. Depiction of Black sun symbol (Wikipedia, 2013)

This research went as far back as six thousand years ago where recorded history of humanity can be found. The task was to understand how ancient people used and understood intentions and how best represent emotions in their works. Figure 12 presents Egyptian hieroglyphs whereby the oval motifs with a horizontal line at the bottom enclosed royal names called cartouches which are the symbols of eternality wishing good luck and safety for anyone who bear the symbol. These writings on the walls stood for centuries doing the work that they were intended to do and cause the emotions desired when compared to modern day logos.

Figure 10. Benben stone (Carroll, 2011)

Benben stone as seen in Figure 10 kept on top of the obelisk as a universal symbol of rebirth (Creation) and resurrection, motifs of rising phoenix and obelisks is found in all major cities of the world expressing the importance of its symbolism. This use of symbolism can be found also in automotive industry. (See Figures 7-9)

Figure 11. Hieroglyphic understanding of nature (Antonio et al, 2008)

Figure 12. Hieroglyphs and modern day logos (AboutEgypt, 2014,)

Stories of craftsmen and secrets have inspired, and cultivated minds of great men through myth, legends, allegories and stories of brotherhoods secrets are precious jewels. Keys to craftsmanship and who established craftsmanship wisdom is a matter of debate among scholars and intellectuals. One thing is for sure that, the ancient people knew many things about the art of craftsmanship in a way that;- modern world is just waking up to understand what has been lost; (Figure 13) Ancient they were the giants that inspired great Greek thinkers and modern inventors. Isaac Newton in his quote he stated, "I have seen further it is by standing on ye shoulders of Giants". (Wikipedia, 2008) Newton was able to see things that no other men were able to see in the same manner, makes one wonder how Newton managed his research works with very little referencing materials as a matter of curiosity, but nature was generous enough through a falling apple.

Figure 13. Tutankhamen's outer coffin (Seaman, 2014)

2.5 Golden ratio or φ

Design works use various ways to establish proportions and explain what is beauty or aesthetics in terms of natural occurrence. Golden ratio is one of the tools which can be used in design work. Phi refers to golden ratio derived from the name Phidias. The golden ratio in modern history was published by Michael Maestlin in 1597 C.E. The history of the golden ratio dates back to 490 B.C.E. Other researchers suggest that golden ratio was known even during the building of the Khufu's great pyramid because the Khufu's pyramid inclination is 51¬°52′ which is very close to φ (phi base pyramid) inclination of 51¬°50′ and Л (pie base pyramid) inclination of 51¬°51′. By definition golden ratio in mathematics can be explained as, two quantities are in the golden ratio if their ratio is the same as the ratio of their sum to the larger of the two quantities. (Wikipedia, 2014)

$$\varphi = \frac{1+\sqrt{5}}{2} = 1.6180339887\ldots.$$

The equation illustrates the geometric relationship

$$\frac{a+b}{a} = \frac{a}{b} = \varphi.$$

$\varphi - 1 = \varphi \div 1$

= 0.6180339887

Whereby **φ = 1.6180339887…**

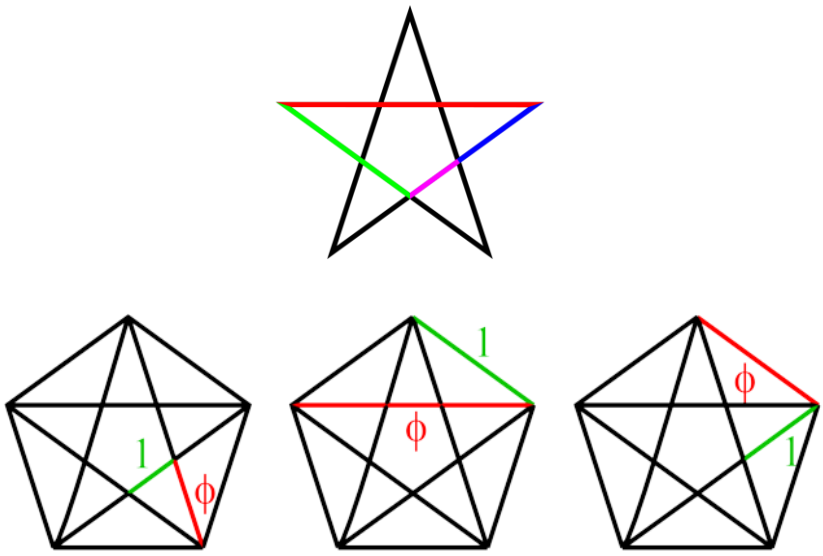

Figure 14. Pentagram's golden ratios (Vali, 2011)

2.6 Golden ratio, Fibonacci sequence and fractals

Golden ratio has appeared in art (Dali) and architectural drawings by Le Corbusier. It appears in: - automated reasoning through algorithms, fractals, Fibonacci sequences, de-sign, nature, book design, pyramid (golden pyramid), music, pentagram (Figure 14)and Euclid's elements where was defined as the mean ratio. It appeared in Plato's work Timaeus where it can be related to the golden mean. Fibonacci Liber Abaci where the sequence approaches the ratio when one takes the ratio of two consecutive numbers. In 1597 golden ratio appeared when Johannes Kepler called it "precious jewel" together with Pythagorean Theorem. $a^2 + b^2 = c^2$. (Wikipedia, 2014)

The term golden ratio is synonymous with the golden section, divine proportion or golden mean. Golden ratio when used in the golden rectangle during design process as a first step of harmonic design ;(Figure 15-16) it determines various proportions that dictate growth. When harmonic design is well executed, it produces an effect whereby

human eye finds it is pleasing to look on the object created using harmonic design. Harmonic design affects; it changes, it inspires and it creates. (Figure 17)

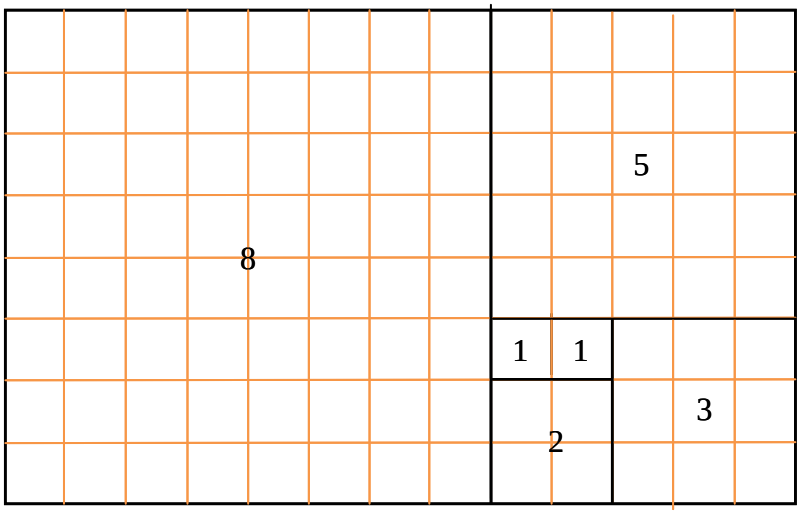

Figure 15. Mathematical expression of Fibonacci sequence (Fletcher, 2010)

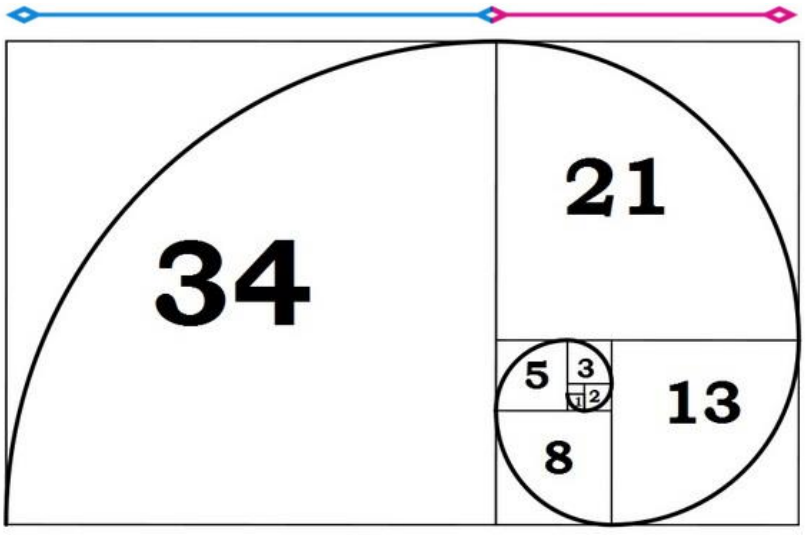

Figure 16. Fibonacci sequence, Fibonacci spiral and golden ratio (Hom, 2013)

Figure 17. Fibonacci sequence in nature (Faulkner, 2011)

Fibonacci sequences 0,1,1,2,3,5,8,13,21,34,55,89…

It can be done by adding two adjacent numbers and the sum becomes the next number

0+1=1, 1+1=2, 1+2=3 …

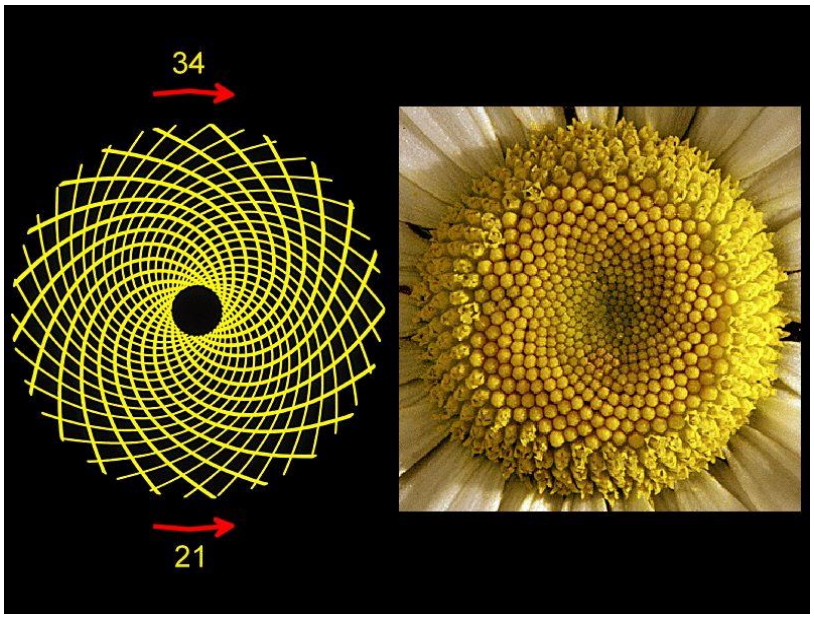

Figure 18. Number of rows following Fibonacci sequences (Softpedia, 2014)

Figure 19. Fractals in nature's design processes in micro levels. (Jarrin, 2012)

Golden ratio, Fibonacci sequences and fractals (Figure 18-19) appear in natural forms, and can be used to illustrate proportional growth (Figure 16) in design and make things look natural and beautiful to the human eye. Figure 20 below show an example when the proportions are created closer to the golden ratio can bring balance. Concept of balance well explained by Schwaller de Lubicz (p.120, 1981) in *The Temple in Man* where he went much further on explaining how knowledge of anatomy and golden ratio implemented in the design of the temple of Karnak at Luxor.

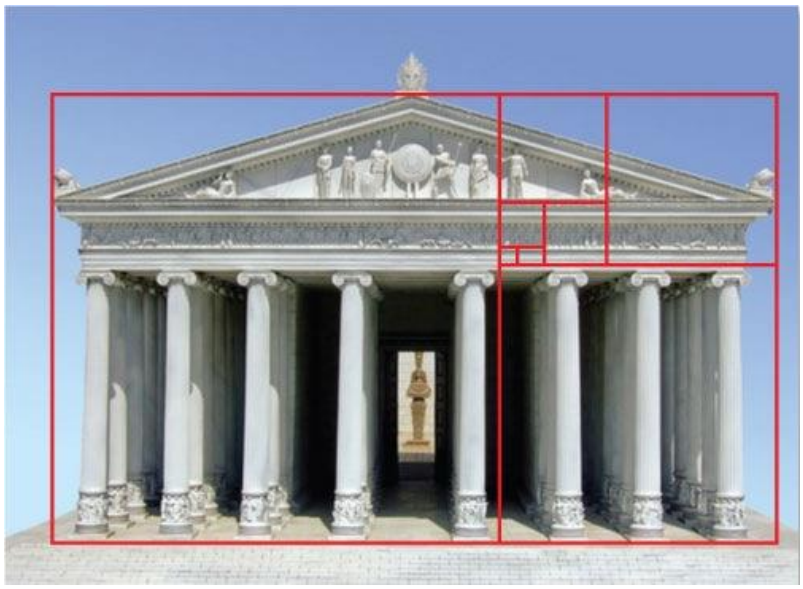

Figure 20. Golden ratio in architectural design (Dang, 2013)

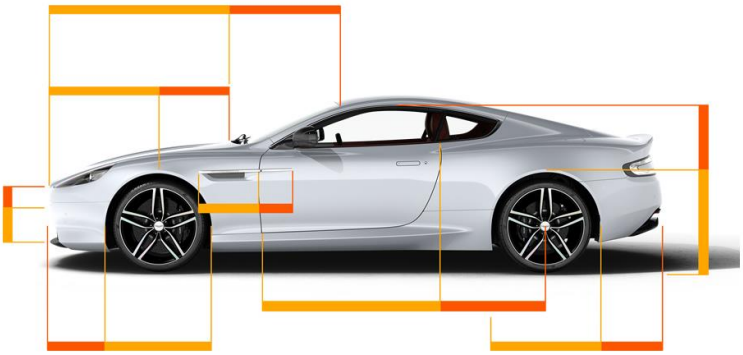

Figure 21. Golden ratio in automotive design (AstonMartin, 2011)

2.7 Emotions and design

In general emotions are complex to be, identified and implemented in the design process. Core human emotions (love, hate, fear, hope) and their traits affect human perception and can be implement in the design process. By definition emotion is an instinctive or intuitive feeling, emotion distinguished from reasoning or experience where responses have to be based on historical insight, not only on emotion. (Oxford dictionaries, 2014) In psychology and philosophy, emotion is a subjective, conscious experience characterized primarily by psycho physiological expressions, biological reactions, and mental states. (Wikipedia, 2012) Emotions often associated and considered reciprocally influential with mood, temperament, personality, disposition, and motivation.

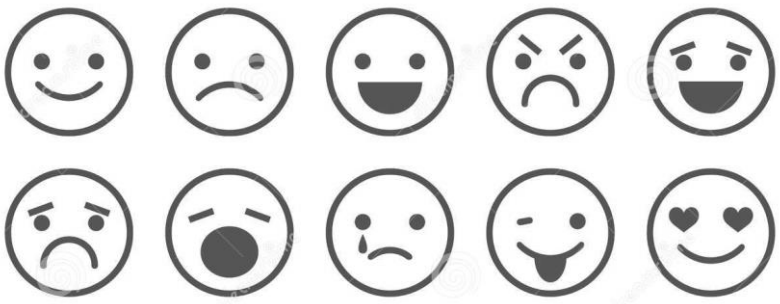

Figure 22. Emotions icons created by lines, shapes and dots. (Lilipom10, 2014)

According to Don Norman's Elements of Great Communication and Design, (Graup, 2010) in the Figure 5, the visceral cognitive level based on likes and dislike which can only be indicated as a smile or a frown. This experience of human likes and dislikes is crucial in dictating what kind of emotion state one is going to feel. Human beings possess basic emotion traits like love, fear, hope and hate. These basic emotional characteristics are crucial in social cognitive psychology and can act as standards of shared assumptions in social interactions. Based on what one knows, in order to achieve a set objective; one must take a certain action. Socio-cultural experiences have great effects on this aspect and can impact one's values, actions and emotions. (See Figure 6)

Human emotions can be observed and understood by understanding certain terms and their semiotic valences. The following terms associated with human emotions based on love, hope, hate and fear.

- Calm Excited
- Joy Sadness
- Desire Disgust
- Satisfaction Dissatisfaction
- Pride Shame
- Brave Cowardly
- Giving Needy
- Kind Mean

Next Figure 23 shows perceived emotions toward the idea stimuli presented to people who have design background or interested in design and to those who are non-designers. The graph shows the two groups perceived emotions in a similar manner with minor differences on how they experienced shame, pride and hope due to their experience of the stimuli. Given explanation of the result was designers were more familiar with the idea presented as stimuli and are less easily surprised but felt responsible for a concept as if it was designed by them.

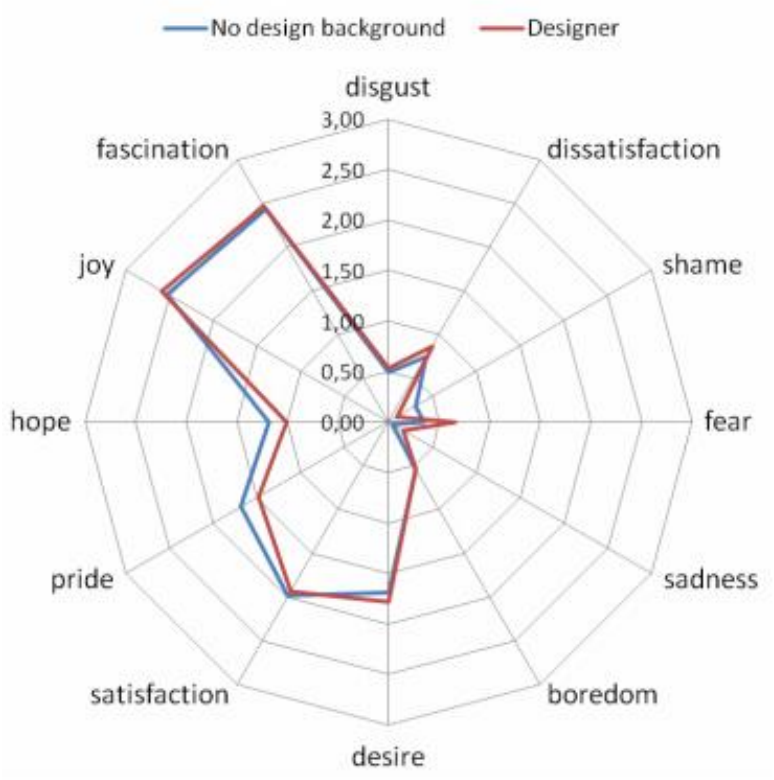

Figure 23. Emotions toward *concept design* as stimuli between designers and non-designers. (Luke, 2007)

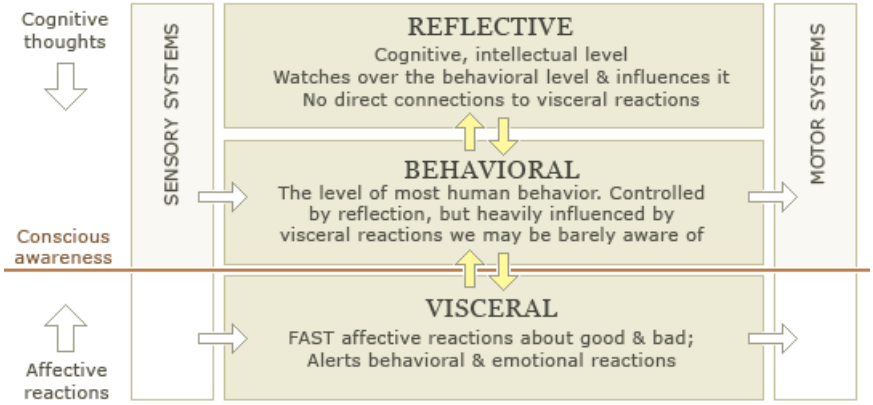

Figure 24. Adopted from Don Norman's concept of human cognitive levels

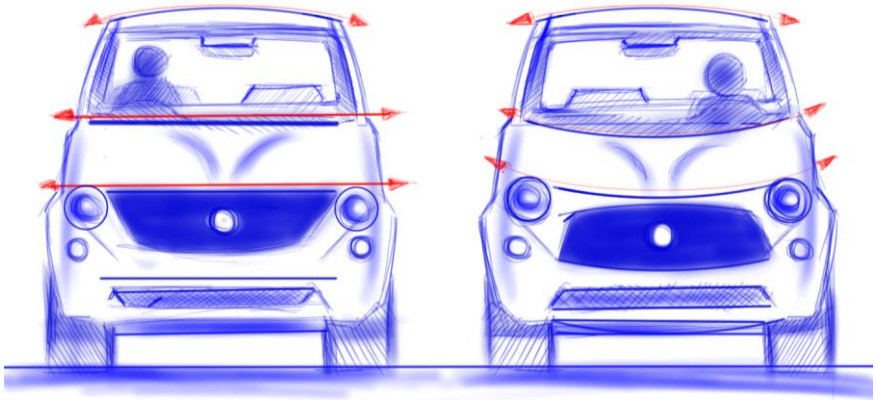

Figure 25. Straight lines or a curved line creates certain emotions.

Figure 26. Minor changes in Mini Cooper design creates different emotion

Figure 27. Mini Cooper close-ups of minor changes

Figure 28. Emotions in logos as part of visual design (McArdle, 2013)

Figure 29. Emotion in automotive design Pininfarina GranLusso Coupe (Pininfarina, 2013)

Paolo Pininfarina, Chairman of the Pininfarina Group when presenting Gran Lusso concept he said, *"We are very proud of this concept car because it expresses at best the aesthetic values that always inspired Pininfarina: the purity of the lines, the harmony of form, and balance. It underlines our expertise as a global designer and*

manufacturer of high-quality exclusive cars realized thanks to unique craft skills gained in over 80 years of activity. Furthermore, we are very pleased to work with a prestigious brand such as BMW". (Source Pininfarina website, 2014)

From this quote, a few important things can be understood to be critical in a design. Aesthetics, lines, form and balance influence design. Capturing product static emotions is critical. It is static emotion that gives the user visual product experience (V.P.E). These visual, emotional experiences can make a product look aerodynamic, sporty, or friendly. Wherever desirability becomes the key factor, one must deliberately codify the core messages consciously or subconsciously.

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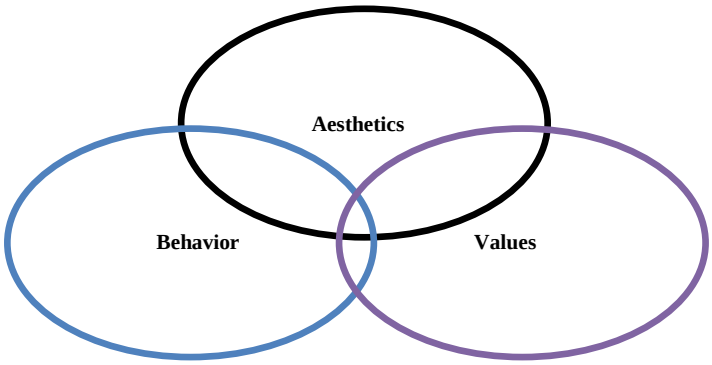

Figure 30. Relationship between aesthetics, behavior and value

Emotion in design can be seen as the relationship between aesthetics, values and behavior as shown in Figure 30.

2.8 Competitors analysis

Number of competitors has increased rapidly in the car business. Traditional competitors were Renault, Dodge, Ford and Chevrolet. These are competitors in the van market segment. The analysis this research conducted from European and American competitors offered a wider perspective due to their historical features which formed the companies. Auto industry is shaped on how one communicates emotion. Emotions are what kept auto makers able to appeal to different types of customers. Volkswagen Group's primary objective is innovation and manufacturing of high quality automotive for middle and higher income customers. Words like stylish, functionality, insightful and excellent performance are a rare quality many manufacturers. (Volkswagen, 2012, p.6)

History looks into the role of popular cultures into Volkswagen campervans' successes. It is during 1960's when cults of alternative lifestyle emerged and ushered a new cultural revolution and the campervan was there to make it happen. Thanks to Transporter's widening popularity and increasing demand worldwide, this has helped the automaker to enjoy ever greater comfort, safety and performance standard. Volkswagen has more than sixty years of know-how that have gone on producing over 10 million vans since it started manufacturing vans in 1947.(Volkswagen, 2012, p.6)

Many car makers do not create camping vans specifically for the purpose. People buy vans and make personal conversions. The product design is aiming that, campervans manufactured by the Volkswagen Group which has a range of many options for customers to choose. By offering different ways to personalize the campervan, Volkswagen can tap the market and have a range of new products to offer for its customers. In this business, there are not many competitors left to compete. Volkswagen is a leader in new ways of innovative thinking.

Competitor's analysis concludes that, Volkswagen's market segment is wider and it has more products and customers in all countries of the world especially in new economies like Russia, Latin American countries and China, where it is widely embraced and considered a people's car.

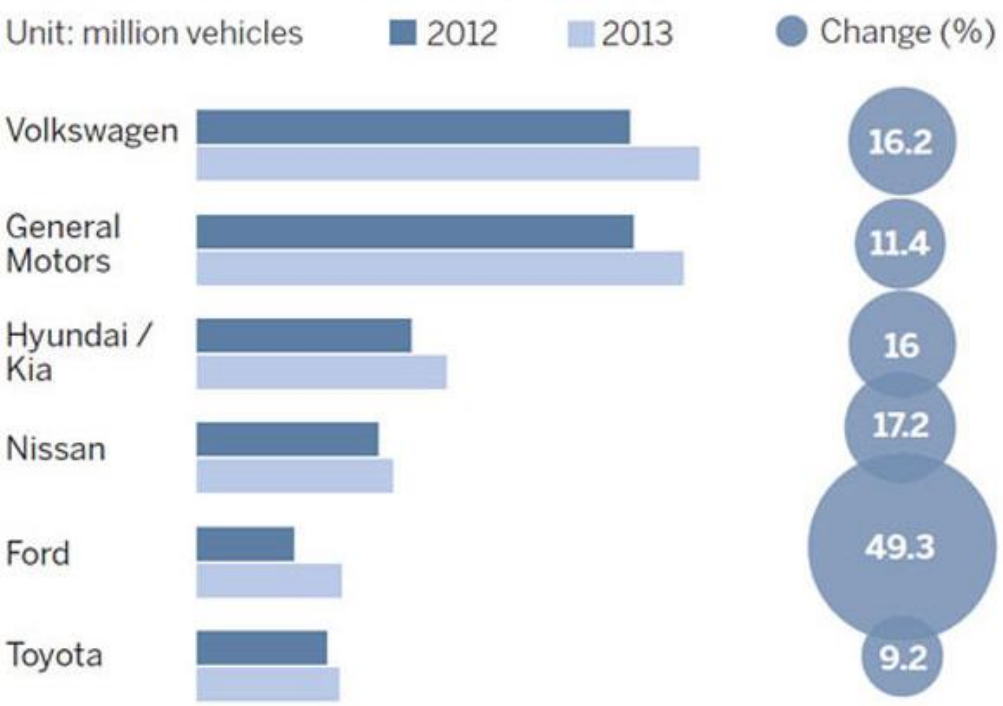

Figure 31. Automotive sales in China (China Daily, 2014)

There are many different kinds of motor homes options in the market which can be classified in terms of their sizes and price range. Below are some examples (Figures 32-35) of available options that are based on size.

Figure 32. Ford Tourneo custom campervan (Ford Europe, 2013)

Figure 33. Hymer Motor home (Sergej, 2013)

Figure 34. Custom made motor home (ZerCustoms, 2010)

Figure 35. Converted motor with a small car access (Scarab0088, 2012)

2.8.1 Usability features

Main issue with the previous campervan model was not having enough space. Previous model had a lower roof and short wheelbase. Solution was to create enough space to be able to achieve maximum comfort from ergonomics point of view. New design considered campervan measurements to be 4900 millimeters of lengths, 1980 millimeters of height and 1955 millimeters of width. Figures 36-39 show facilities ideal for a working space.

Figure 36. Usability features in a mobile environment.

Figure 37. Usability features in a mobile environment.

Figure 38-A. Usability features in a mobile environment.

Figure 38-B. Usability features in a mobile environment.

2.8.2 Automotive identity and design features

Figure 39 shows examples of Audi and BMW grills consecutively. These designs feature are the key for product identity. Other components that are determining automotives identity are:-

- Emblem
- Head lamp
- Radiator grill
- Tail lamp
- Rear bumper

Car design can be divided into four major areas of design.

- **Exterior design: -** where proportions shape and style can be observed.
- **Interior design: -** deals with designing of dash board, GPS system, CD player, seats, pillars, smart phones and paneling.
- **Trim design: -** deals with colors and trims, paint, plastic, leather, fabric design and texture.
- **Graphic design: -** contrast and color patterns.
  In this part of the work some of the exterior features which are part of the car's identity will be shown.

Figure 39. Audi and BMW grill design feature and identity (Caricos, 2012)

2.8.3 Brand and identity features

Volkswagen design philosophy is based on **evolution** and not on radical changes. Volkswagen brand has evolved as time passed. Figure 40 to Figure 43 are showing this process.

Figure 40. 1937 Volkswagen logo (Volkswagen, 1937)

Figure 41. 1939 Volkswagen logo (Volkswagen, 1939)

Figure 42. 1945 Volkswagen logo (Volkswagen, 1945)

Figure 43. 2000 Volkswagen logo (Volkswagen, 2000)

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Figure 44. Evolution of a van T1- T5. (Volkswagen, 2012, p. 4-5)

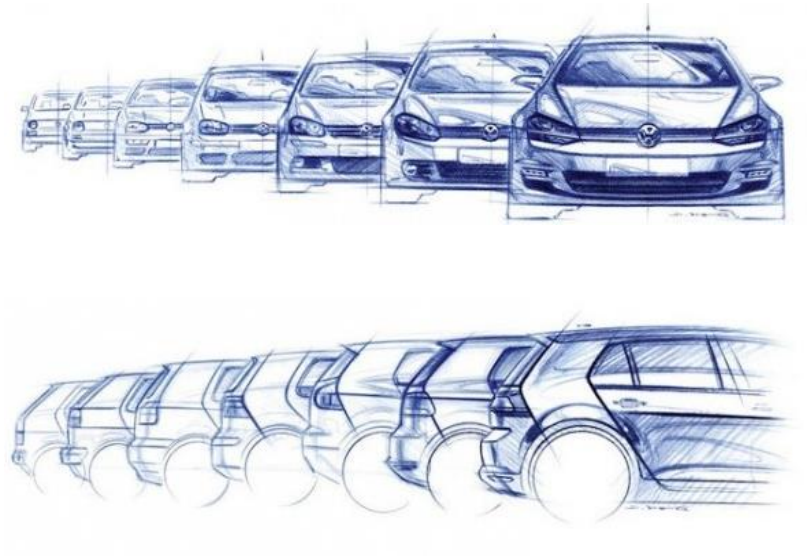

Figure 45. Volkswagen Golf design philosophy of evolution and gradual changes (Gallina, 2012)

It is self evident that Volkswagen design philosophy is based on evolution. (Figure 44-45) Klaus Bischoff who is executive director of Volkswagen design once said, “When you are a young designer of course, you think everything is wrong and should be different… You want to conquer the world and with great ideas. But over the time you have to really understand what Golf is.” (Eric Gallina, 2012)

Figure 46. Volkswagen transporter Campervan (Kernow, 2012)

Design of the campervan based on the measurements of the California model with minor changes of the drive train with wheel base of 3000, total length of 4900 and height 1980.

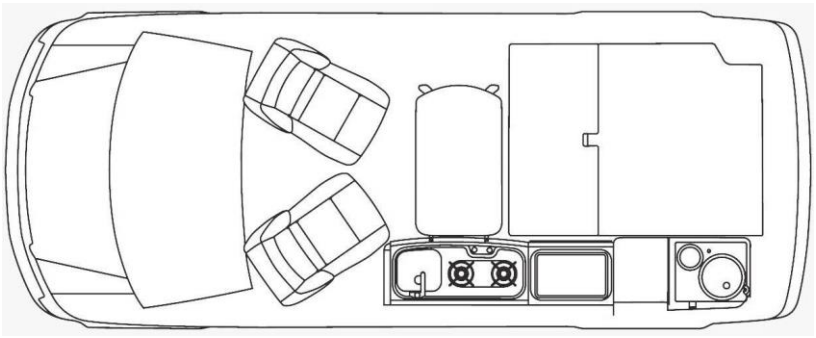

Figure 47. Campervan plan view (Volkswagen Vans, 2011)

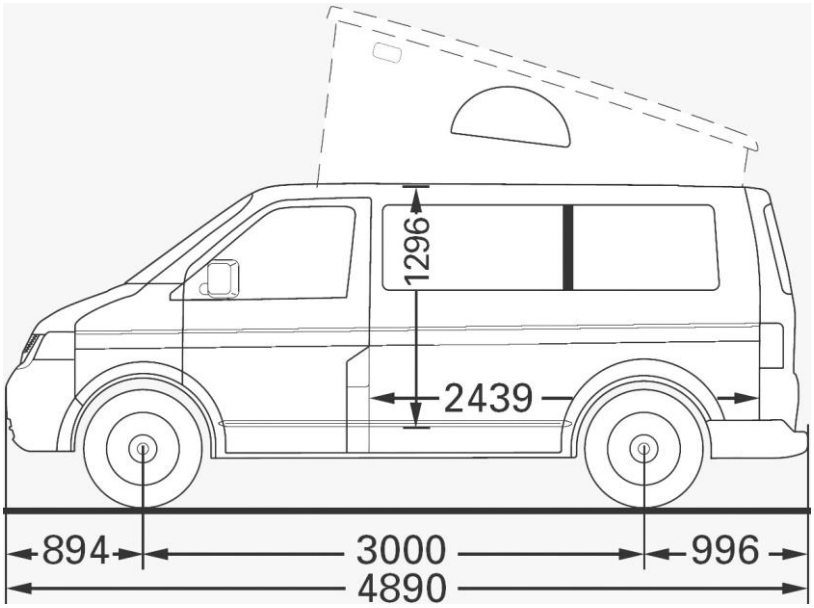

Figure 48. Measurements of a T5 wheelbase (Volkswagen Vans, 2011)

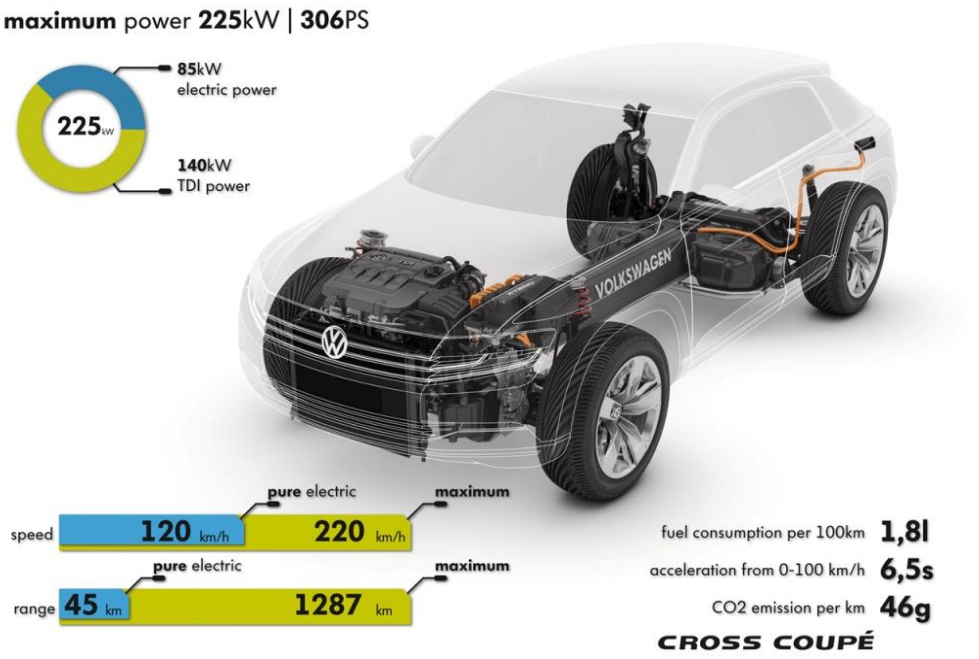

Figure 49. Fuel efficient SUV: Cross Coupé from Volkswagen (Volkswagen, 2012)

Figure 50. Progressive Volkswagen T-Roc SUV Concepts (Volkswagen, 2014)

Figure 51. Progressive Volkswagen T-Roc SUV interior sketch (Volkswagen, 2014)

Figure 52. Progressive Volkswagen T-Roc SUV rear 3-quarter sketch (Volkswagen, 2014)

2.9 Volkswagen's brand analysis

Volkswagen brand portfolio comprises thirteen brands (Figure 53) including Audi, Volkswagen, Bentley Porsche, Skoda, Lamborghini, MAN, Scania, Ducati, and SEAT uniting a wide variety of brands and companies with all their individual characteristics and focuses under one umbrella of Volkswagen Group. (Volkswagen AG)

Figure 53. Volkswagen Group brand portfolio (Volkswagen AG, 2011)

2.9.1 Brand positioning

Volkswagen branding position in Eurozone is neutral, when compared to outside markets where the brand is highly valued. The new campervan is specifically designed for Volkswagen Company and its affiliates. VW Campervan intended to be next to Audi with prestige and emotional values added. (Figure 54) By paying attention to young people of today who will be making a difference and safe guarding the future of Volkswagen brand, Volkswagen must pay attention to its customer's needs by building the best, safest, and most environmentally friendly cars. This means investing in cleaner energies.

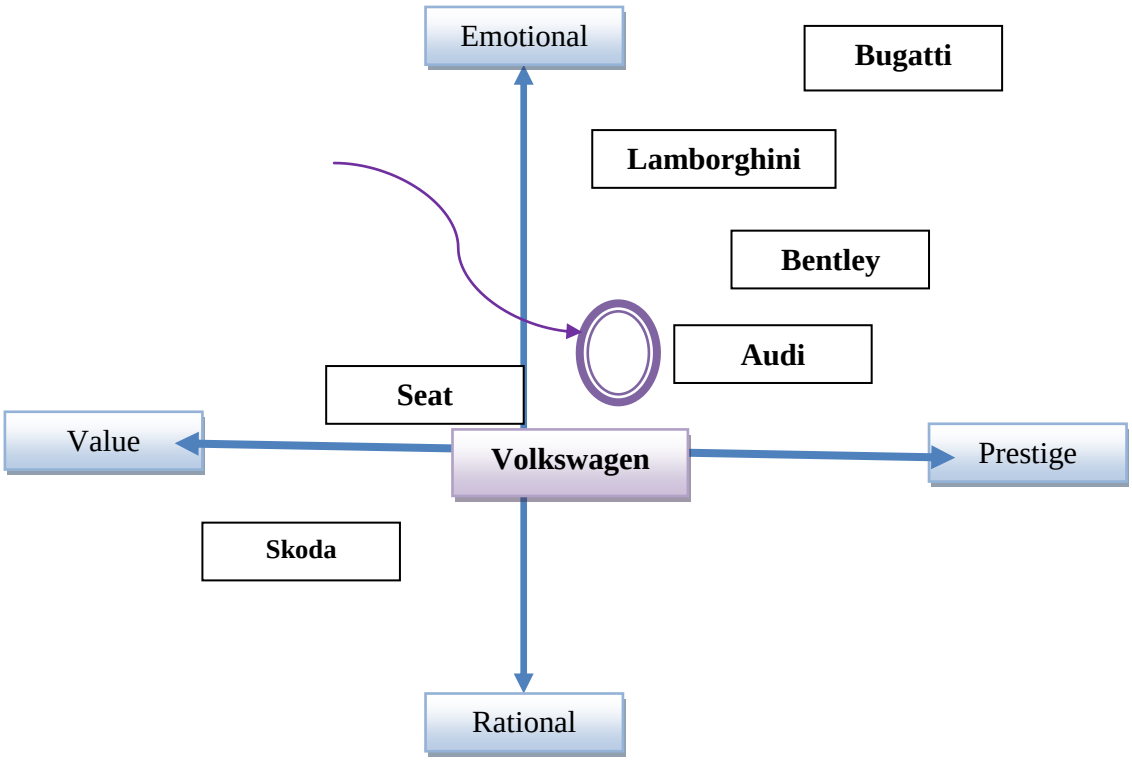

Figure 54. Brand positioning of a newer Volkswagen campervan (EENI, 2013)

2.9.2 SWOT Analysis

Volkswagen with its global reach and strong brands should act responsibly and improve its environmental scores by introducing more environmentally friendly cars. There are many opportunities and threats for Volkswagen as this analysis will show.

- **Strength**

  -Global presence in 153 countries

  -Strong brand portfolio consisting of 13 brands

  -Shared research and development within brand group

  -Strong presence in China

  -Well performing brands

  (Volkswagen SWOT, 2013)

- **Weaknesses**

  -Weak Position in United States in passenger car market 5% of share

  -Most sports and higher end cars are not environmentally friendly for example Porsche, Lamborghini, Bugatti.

  (Volkswagen SWOT, 2013)

- **Opportunities**

  -Changing customer needs

  -Increasing fuel prices

  -Positive attitude towards “green” vehicles

  -Growth through acquisition

  -Increasing global demands

  -Localized productions

  -New factories in resource rich countries

  (Volkswagen SWOT, 2013)

- **Threats**

  -New emission standards for C02

  -Fluctuating fuel prices

  -Increases of new and better Electric vehicles

  -Rising raw materials prices especially metals

-Costs over international exchange rates outside the Eurozone
(Volkswagen SWOT, 2013)

2.9.3 PESTEL Analysis

PESTEL stands for Political, Economic, Social, Technological, and Environmental. This analysis looks into the environment which business has to operate and deal with. Volkswagen Group achieved its target of further increasing its market share. “We captivate customers worldwide with our unique brand diversity, attractive models, and innovative automotive financial services”.
(Volkswagen Group, 2011). Analysis will focus on the power of Volkswagen brand as whole.

2.9.3.1 Political

More Legislations and taxes introduced to curb carbon emission. It means that new cars have to meet these general requirements and pollute less. Campervan needs to meet these requirements, for that case it must use renewable energy and alternative energy. Suitable engine for the designed campervan recommended being hybrid engine that solves the pollution problem and environmentally friendly as shown in Figure 49. (Volkswagen Group, 2011)

2.9.3.2 Economical

Economic crisis sweeping industrial nations is a sign that things are changing. New and powerful economies like Brazil, Russia, India, China and South Africa (BRICS) are emerging. It is a challenge for developed world and sometimes quoted to be a threat to Western civilization. Volkswagen has considered this challenge and positioned itself within these markets. Economic forecast shows Volkswagen group benefits from having factories and centers in the new economies, and mutual benefit is achieved. Despite difficult conditions in volatile markets, the Volkswagen Group

continued to perform well.
(Volkswagen Group, 2011)

2.9.3.3 Social

Volkswagen offers employments to over 501,959 employees and takes it social responsibilities to people of Germany, World and stakes holders extremely seriously. It offers:-
company pension plan, training programs, professional development, advancement of women, family-friend HR policies (value on family and job)

2.9.3.4 Technological

The use of new technologies to the Volkswagen factories and facilities help to cut cast down and maximize production across the board. Information technology used in its production site and sales networks, reduce energy consumption of 9.1 million kWh annually. (Volkswagen Group, 2011). Environmentally friendly production process and the efficient use of raw materials that are becoming increasingly scarce play crucial roles. Technologies used in Volkswagen factories can achieve these objectives.

2.9.3.5 Environmental

Diminishing natural resources, waste water, CO2 emission, energy consumptions and many other environmental concerns are a major headache for many companies. In order for Volkswagen to be able to address these concerns, a number of implementations have been introduced to its factories. Many changes are technological, which helps to address these environmental issues. Many of the Volkswagen products have received environmental Commendations Awards. These awards based under ISO 14040 of an environmental improvement in product development.
(Volkswagen Group, 2011, p.217)

2.9.3.6 Legal

Legal aspect is to make sure all legislation requirements met. A result of SAM 2011 Volkswagen achieved highest scores than the industry average. Economic dimension Volkswagen scored 92% against 75% industrial average. Environmental dimension Volkswagen scored 93% against 68% industrial average. Social dimension Volkswagen scored 99% against 75% industrial average. Total assessment score of 94% against 73% industrial average. (Volkswagen Group, 2011) Results show that Volkswagen Group takes its responsibilities extremely serious and sets standards for other to follow.

2.10 User analysis

Product specifically intended for Information Technology professional and content creators in IT sector; they may be developers, designers, programmers, engineers and tech savvy generation as whole in a globalized economy. It is for people who demands and require mobile lifestyle and working on the move. Targeted users may be working for:-

- Big business
- Small business
- Governments
- Entrepreneurs
- Freelancers

Today existing of technological advancement that is changing the nature of societies means of production, politics and security and entertainment. These technological advancements are going to change how business will be in the near future beyond recognition are:-

- 3D printing
- IT security
- Smart coins, Cards, and money
- Holographic Tele-presence
- Net neutrality (or lack thereof)

- Collaborative consumption
- Smart TV and smart surfaces
- Wearable Technologies
- Mobile controlled drones and unmanned vehicles.

It becomes evident that, entrepreneurship and freelancing becoming more of a reality. Over 60% of companies expect to hire freelancers in 2014. Over 55% of freelancers will never go back to traditional workplace. (Docstoc, 2014) Main factor behind this entrepreneurship revolution is the sense of controlling one's own destiny. Life and schedule, being own boss, following passion, not commuting, having more choices over work projects is the main motivator.

2.10.1 Health and safety

Car manufacturing is governed by numerous laws, standards and regulations, which ensure the safety of the car occupants and safety of other road users. These standards include environmental regulations, fire safety and passenger safety which include adults and children while using the vehicle. Camper's safety and health considerations can be found from campers associations all over Europe like general hygiene, water, safety, medications, sunburn, etc.

Health and safety standard ensure all campervan specifications are met like chassis and under gear, weight and dimensions, road lights, LPG (gas) system, bedding and upholstery- flammability. Features incorporated in the design are, fire safety and material selection, step measurements, safety belts, airbags, wheel chair locks.

Relevant European standards considered, BS 61 73: 1990 (Gas catering appliances for use in all types of catering establishment) and all European certification scheme designed to ensure that leisure vehicles are safe and legal for their owners to use. All in formations can be obtained from European Standards body CEN.

2.10.2 Geographical

BRICS countries include Brazil, Russia, India and South Africa; newly formed term MINT countries which include Mexico, Indonesia, (Figure 56) Nigeria and Turkey are emerging economies. These countries have developed and got purchasing power that is changing the nature of doing and conducting business. (Figure 55)

Figure 55. Cities with higher development of ICT Maturity (Bylehn, 2014)

2.10.3 Behavioural

Young urban population requires and demand freedom from confinements of cities and societies, and they are ready to explore their environment outside of traditional homes, cities and offices. This product is intended to help this group of people who are tech savvy by offering a product that will reinforce group identity and offer

possibilities to explore the world and look for the answer to the pressing problems from the nature.

Figure 56. Jakarta Indonesia member of MINT countries. (Dewi, 2009)

2.10.4 Psychographical

There is increasing need to get in touch with the natural environment as lifestyle and belief system changes. Shift towards more ecologically aware societies humanity looks into the nature for answers for all mental bending problems. Nature has always offered the answers concerning how life makes things and in which structure. Biology gives to humanity answers through the study known as **Biomimicry**. The following solutions to pressing human problems will come from nature. (Janine, 2009)

- Self assembling especially in Nano technologies
- How nature deals with CO2
- Solar transformations
- Power of shapes when dealing with dynamics
- How plants and animals find and conserve water
- Creating metal without mining
- Green chemistry
- Timed degradation
- Sensing and responding
- Growing fertility
- Life creates conditions conducive to life

2.10.5 Demographical

Growing of the middle class is important demographic factor witnessed in all of the new economies, it serve as an important economic indicator. Population growth and expanding urban life and cities of the world are obvious (Figure 57). Almost all of the new economies have higher birth rates compared to industrialized countries that show stagnations.

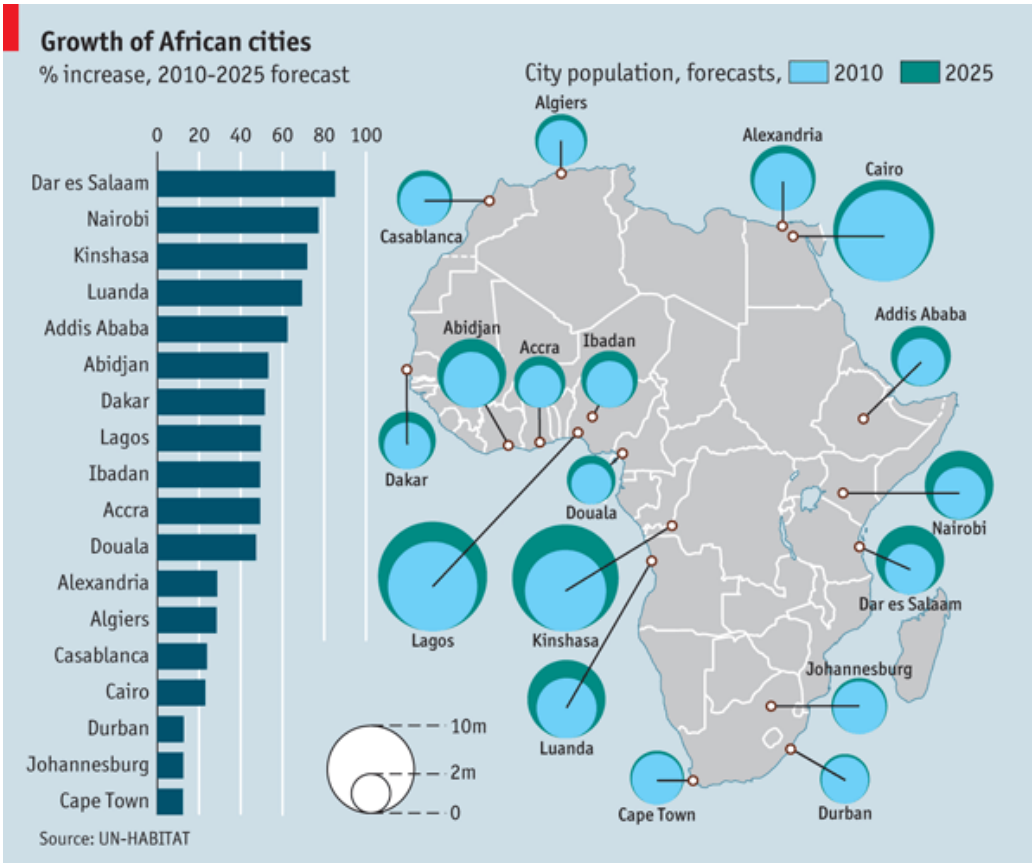

Figure 57. Growth of African cities (Economist, 2010)

As Figure 57 above shows, a third of Africa's 1 billion inhabitants currently live in urban areas, but by 2030, that proportion will have risen to half. According to a recent report from UN-HABITAT, the United Nations agency for human settlements, the population of some cities is set to swell by up to 85% in the next 15 years. (Economist, 2010) This trend will have impact in the future of IT professional and by doing so will increase the need for mobility and change in life style.

3 DESIGN PROCESS

Sketching process produced many ideas and later key design features considered during design process. The idea that design is visual it makes it easy for others to comprehend. Based on the process previous conducted during seminar project the challenge was to develop further the initial concept during this stage and look into the emotional design for further research and development of the original ideas which lacked emotion factors. During the design process emotional input was the main criterion for further development. There were multiple criteria that dictated the final product and how final product should look. During various design stages, designs were achieved by considering original Volkswagen shape in mind and explore further what makes it unique and identifiable as Volkswagen.

Method used was visual product experience (VPE) which identifies key product lines. These lines in automotive (Figure 58) give a product its character, proportions, dynamics and identity also lines tells more about the vehicle abilities, emotions and silhouette.

- Hood line
- Windshield line
- Roof line
- Drip line
- Waist line
- Character line
- Accent line
- Wheel base line
- Wheel arch
- Crown line

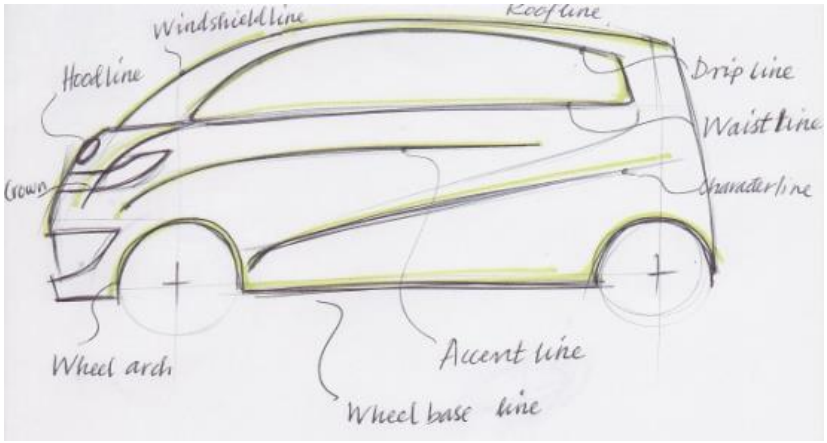

Figure 58. Important lines in automotive exterior design

At this stage, line acceleration, tension and their effect were studied by changing minor curves and slant positions. Wheel base remained 3000; different wheel positions were considered and tested for visual experience.

Original inspiration for the development of the campervan came from Volkswagen models, and how models transformed from previous models to the latest. Forms and main lines carefully studied, and the final result is a campervan that is streamlined and aerodynamic. The use of computer 3D imaging and modeling software used, these images that were stored and studied during many stages of development. With computer 3D softwares, many thing can be tested and achieved quickly, and this reduces the time consuming process of making physical model at early stages.

3.1 Initial concepts

Designing of a campervan is based on the measurements of the T5 model with wheel base of 3000, total length of 4900 and total height 1980-2100 and 1955 width. Figure 59-66 below shows the design thinking and process.

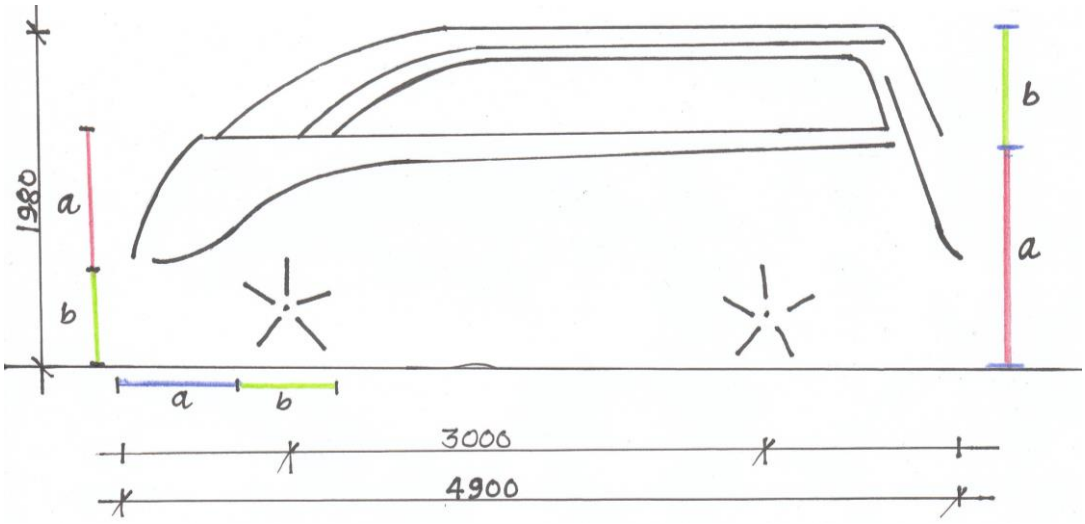

Figure 59. Golden ratio and proportions

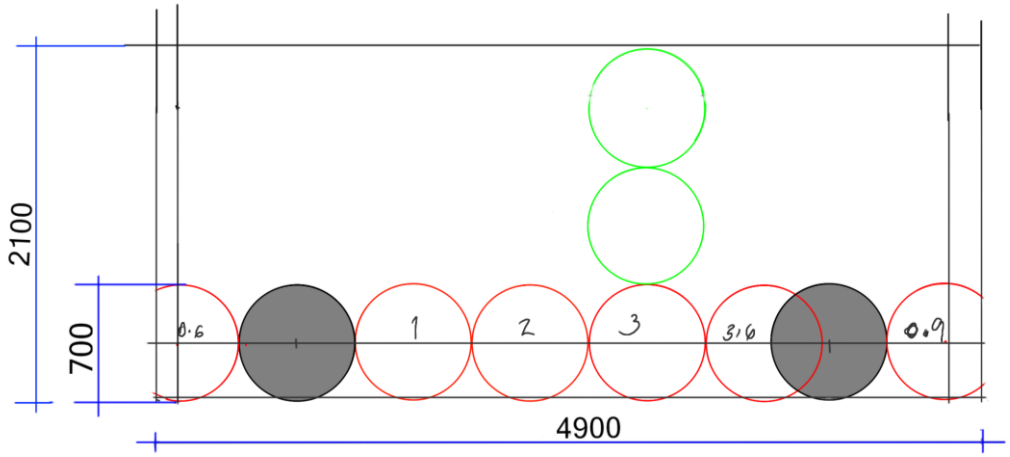

Figure 60. Proportions

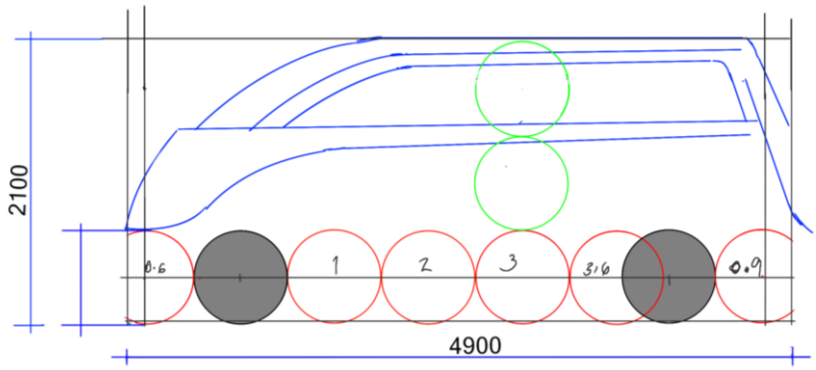

Figure 61. Proportions, wheel base and key lines

Figure 62. Silhouette study

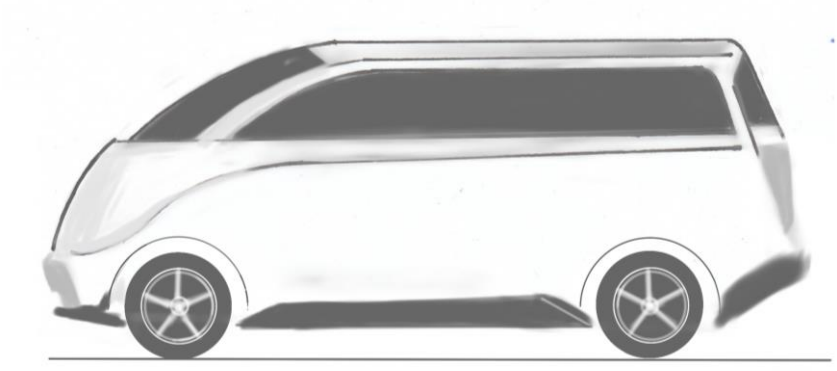

Figure 63.Silhoutte study

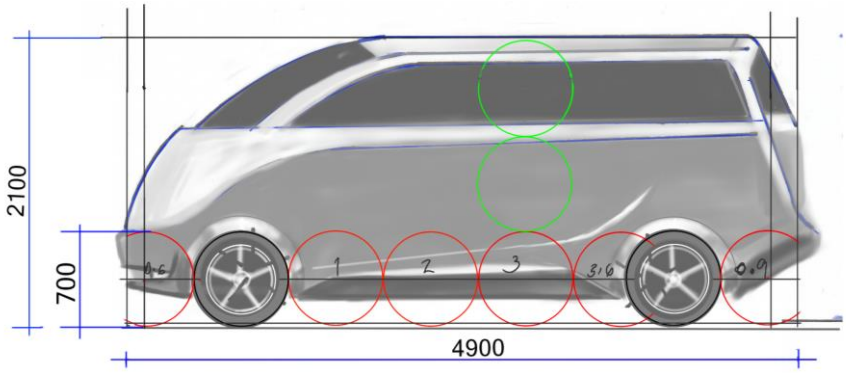

Figure 64. Form and proportions

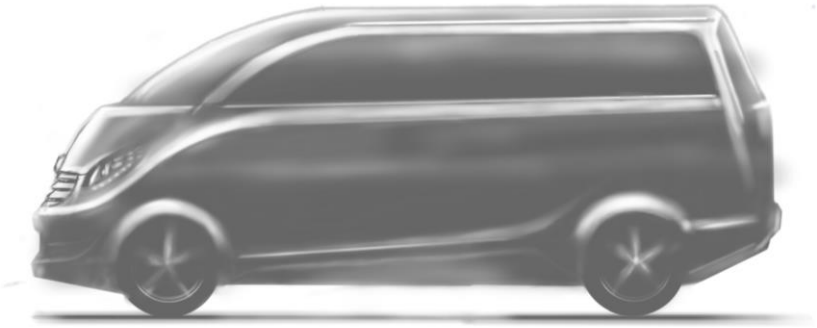

Figure 65. Form and highlights

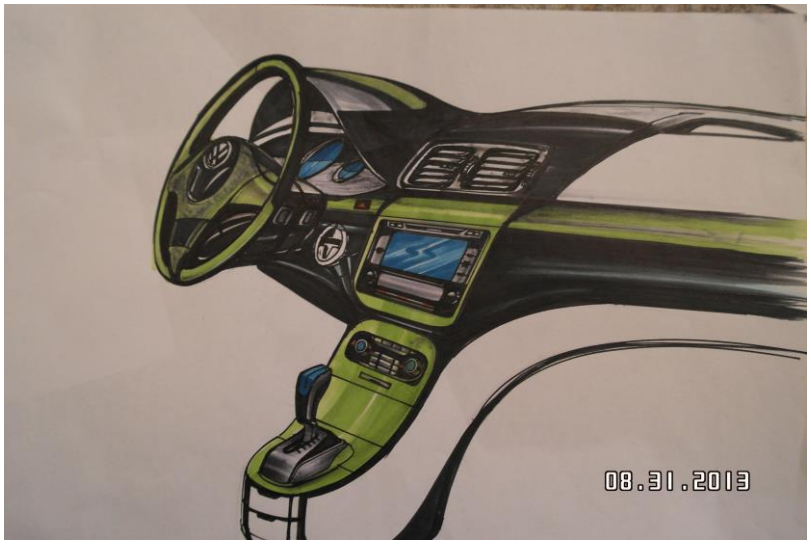

Figure 66. Dashboard sketch

Figure 67-73 shows the second stage of design process where campervan body was carefully studied through physical blue foam design which helped on deciding the final design look and feel.

Figure 67. Blue foam with a mirror for volume study

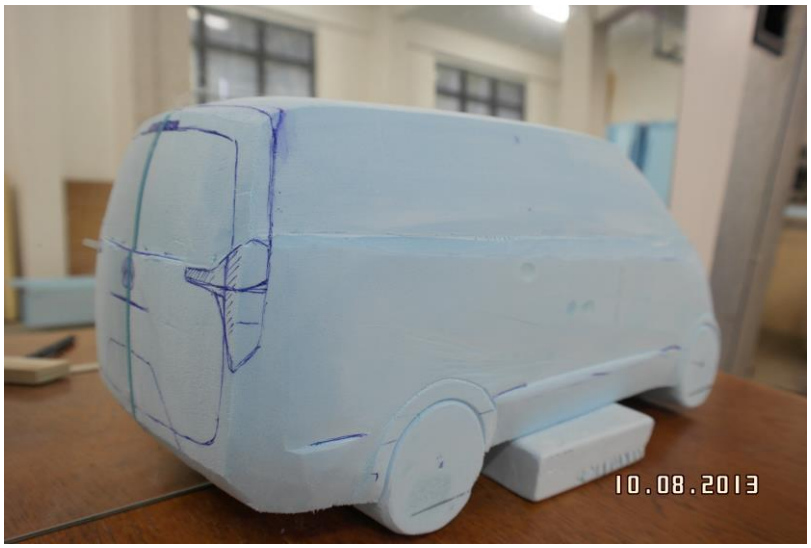

Figure 68. Study of a tail gate and rear lights

Figure 69. Study of a front face for extreme outdoor concept

Figure 70. Key lines and character line study

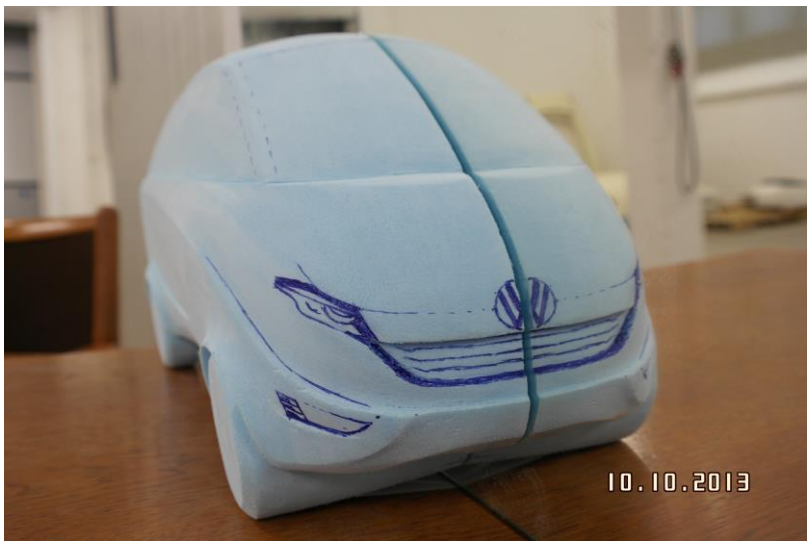

Figure 71. Grill study

Figure 72. Study of positive and negative space with base painted black

Figure 73. Green room appearance study

During this process as shown in Figure 74-76, two different models were produced. These models were different in height and wheelbase position. Later models surfaces painted in primer and final silver or grey color which helped in studying shadow and highlights on the surfaces.

Figure 74.Primer painted model and blue foam model

Figure 75. Silver painted model

Figure 76. Silver painted model

3.2 Concept selection

During concept selection process, the task was to study form and develop them further. Figure 77-79 below are final two models which were produced during design process. The front design in the Figure 79 had more appeal and displayed more emotions for further development. The key selection criteria were proportions, emotions and surfaces. Both models in (Figure 79) have the same length, but the model on the front appears longer due to change in wheels diameter.

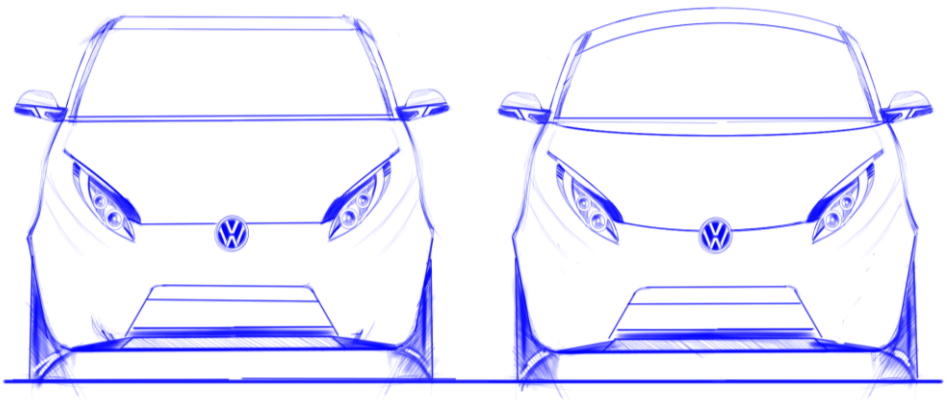

Figure 77. Sketching - different emotions by the use of lines

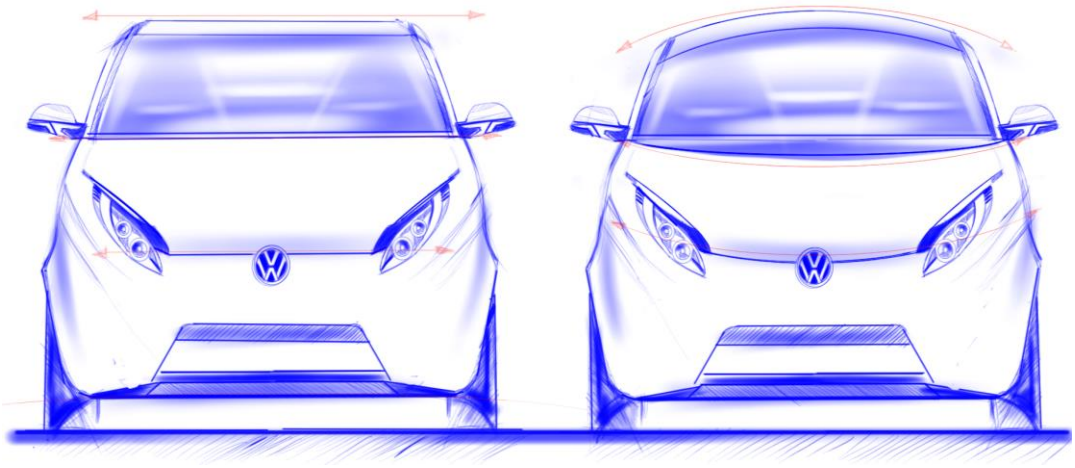

Figure 78.Sketching- contrast study

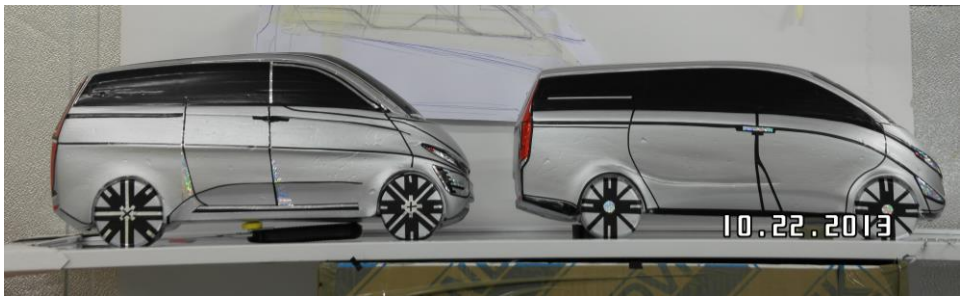

Figure 79. Two painted models created from the blue foam

3.3 Concept development

The concept development started as a direct result of a previous model (Figure 80-81) created during project seminar which lacked character, emotions and personality. The mission was to add more emotions by adding lines and new forms which will give the new character. Figure 80-81 below is the first attempt which was later developed into a newer model. Images below shows development during 3D modeling phrases where further studied where carried out on determining the proper level of detailing. Things like lights, mirrors and front face studied. A 3D ergonomic study was conducted to determine positioning of dashboard and instruments. (Figure 84)

Figure 80. Three quarter rear view of initial model

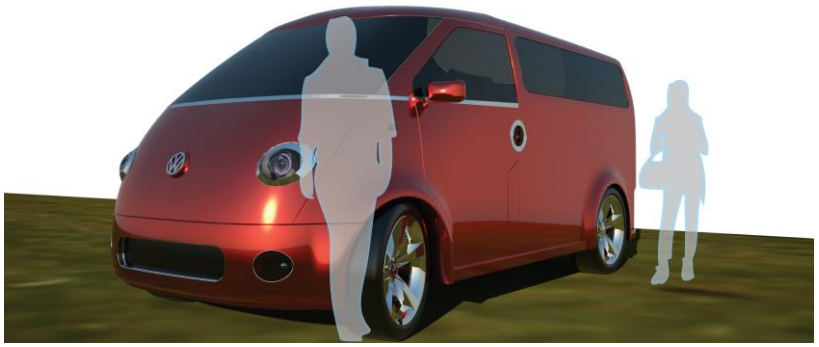

Figure 81. Initial model three quarter front view

Figure 82. Design development first stages

Figure 83.Further design development

Figure 84. Ergonomics 3D simulation

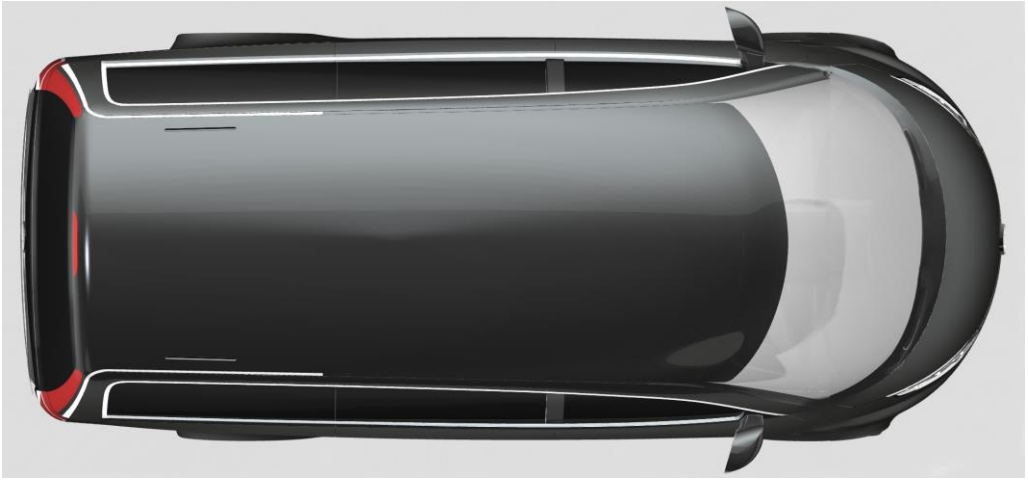

Figure 85. Top view 3D model in dark color

Figure 86. Rear view 3D model in dark color

Figure 87. Interior Development for retractable and rotating seats

3.4 Final concept

Volkswagen campervans final concept with silver color is suitable neutral color for design idea. Other colors suitable are Candy White, Salsa Red, Sunny Yellow are regular or standard paint. Metallic paints are Night Blue, Deep Black, Olympian Blue, Reflex Silver, Fresco Green, Sandy Beige and Samoa Red and Natural Grey. (Figure 88-75)

Impression - Distinctive and well defined.

Consistence - Fit well with product family.

Harmonious - Concept is aesthetically beautiful, balanced, elegant flow and simple in its design.

Recognizable - Having visual resemblance / unique visual features.

Brand association - Fitting well with Volkswagen values, elements and culture.

Emotions were happy, delighted, surprised, attracted and satisfied.

Product expression is innovative, sporty-*aerodynamic*, original, individual, and progressive

Figure 88. Front view with smile character

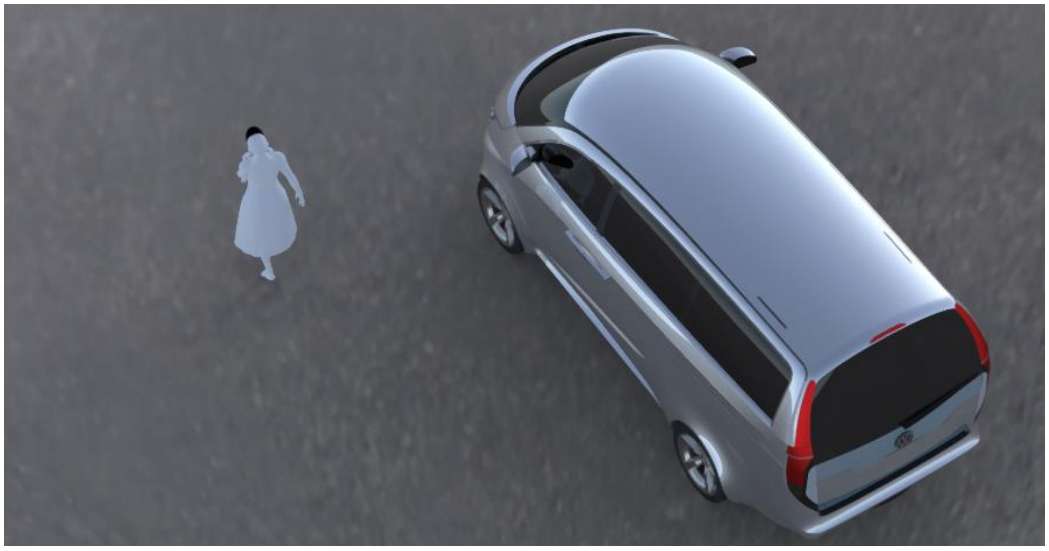

Figure 89. Final 3D model top three quarter rear view

Figure 90. Final 3D model in Night Blue metallic color

Figure 91. Final 3D model in Samoa Red metallic color

Figure 92. Final 3D model in Fresco Green metallic color

Figure 93. Final 3D model in Dark Sandy Beige metallic colors

Figure 94. Final 3D model in Night Blue metallic color

Figure 95. Final 3D model in Reflex Grey metallic color

4 CONCLUSION

The task was to create emotion design of an Iconic symbol from the original soul and re-design the campervan to fit in the modern time. A new campervan concept is born with style based on emotions (not to everyone taste) and functional. Project makes business sense when is implemented. The new campervan has been received well by people who saw its design developments.

Overall evaluation of the product is a success. Design could be even better when more hours are put into the project and leave no stone unturned, and all technical boxes are not unchecked. Time and resources are the essence for any planned project. When time and resources are available, every detail shape, line and point will be treated as important as the whole car and make sure every single design feature is of first class surface. Proportions, forms, contrast, color and all other design elements will be well tuned to meet maximum emotional reaction for anyone who sees the campervan the first time. The best manufacturing methods for luxury cars is recommended and should be used.

Volkswagen group is a leading automobile manufacturer worldwide and largest in Europe. Martin Winterkörn the head of VW Group mentioned during his interview with DW TV when asked about future of VW, and future of automotive industry he said, "Future cars must have low emissions, they will still use conventional fuels with combination of electric powered motors." In his remarks, he emphasized that VW is a European car maker; he also made it clear that car market will grow outside European economic zone. It is everyman's dream to design and build a car. All this was because the future intensions are to build and design cars.

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