AUTOMOTIVE LIGHTING SCULPTURE.
DEFINITION AND REALIZATION

Автомобилна светлинна скулптура. Концепция и реализация

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Abstract: The report represents some fundamental aspects, ideas, hypotheses and prognoses of the Automotive Lighting Sculpture concept.
KEYWORDS: AUTOMOTIVE LIGHTING SCULPTURE, DEFINITION, REALIZATION.

1. Introduction

Modern culture can be seen in three main directions - art, science and design. Art is a creative form of subjective expression where the personal experience, knowledge and skills of the author have a major role. Art consisting of two main branches - Fine and Plastic arts, reflects the awareness and attitudes of a particular social group and defines its level of social and cultural development. Science covers massive information database defining four major areas - humanities, natural, social and technical sciences, built on the human knowledge, experimentally verified through the scientific method. Born in the interaction between science and art, today design is a representative of the cultural development of contemporary society and a clear evidence of the great industrial progress which significantly reflects the quality of life. Today, design is regarded as "third" layer of modern culture.

Information design is a representative of relatively young interdisciplinary field of science, particularly in design, having occurred as a „replica” towards the more noticeably evolving global information society. It is a powerful tool in building strategic approaches and key tactics, thanks to which the available data sets can be properly managed and smoothly modeled. The results of these efforts lead to building a better overview (disclosure of "a holistic picture") for high intellectual products and services, and provide a methodical system of alternative approaches for their improvement.

This report deals with that philosophy as an alternative development of the creative and innovative process in the contemporary design field as it represents some fundamental aspects of the ideology of the Automotive Lighting Sculpture concept (ALS concept; Автомобилна светлинна скулптура, АСС).

2. Definition of the ALS concept

The creative application of the Automotive Lighting Sculpture concept (ALS concept; Автомобилна светлинна скулптура) is associated with the development of atypical, unexpected, unusual imageries, "something" on four wheels, which allows the individuals to examine the vehicle as a nonlinear open system, susceptible of experiments, interpretations and metamorphoses, independent of the classic rules and constraints that the industrial design standards require and in particular transportation design field. The ALS concept is a matter of "creative and intellectual permissiveness" – it is based on experience and knowledge (general, medium and narrow competence) where a symbiosis between elements appears as a form of synergetic interaction. In other words, the concept provokes the emergence of associative thinking, as a "purposeful and reckless brainstorming" where the transfer of information between relative and/or distant in compatibility units are to obtain new innovative solutions that stimulate creativity and lead to hard-to-reach ideas and concepts. This is a creative approach that calls the designer's desire to show artistic recklessness as a manifestation of nonlinear thinking - a road that is going beyond the existing borders of the familiar, proper, common understanding.

The ALS concept gives validity to the "right" to be "wrong" (bootlegging crazy ideas; прао ко доси „хрив“, контрабандно, „криминално” производство на безразсъдни идеи) through the whole creative process. Thanks to this philosophy, the creative person behaves liberally on the white sheet of paper and the horizon (direction) of "thought vectors" are open, selected intuitively - "as the artist understands and feels it" (Fig. 2).

Fig.1. Evolution of the contemporary design. Emergence of the Automotive Lighting Sculpture concept (ALS).

The idea of Automotive Lighting Sculpture concept has emerged as a result of the development of several contemporary art directions like light sculptures, light installations and performances, which, thanks to rapid progress in lightening technique adopted new dimensions. The concept projects A’KIMONO, Audi A’KIMONO LS2.0 (Fig. 3.), Audibleyes ALS (fig. 8,9) and Bugatti Atolla ABLS (www.dorteo.com) represent the synergetic interaction between light and form with different “weight” of the associativity and avant-garde.
3. The place of the ALS concept beyond the process of building a real car model

The main design stages of a real car model process are as it follows: product planning, brief description, "brainstorming", theme (style) directions, three-dimensional modeling, design evaluation, program management, testing the model release. The place of the ALS concept beyond the process of building a real car model is represented in Figure 4.

The practical application of the Automotive Lighting Sculpture concept can be seen in several dimensions.

Firstly, this is an individual creative approach that helps to build strong, fascinating and memorable characters on four wheels, an essential starting point in the transportation design process – the ALS concept is an impulse of creative inspiration ("импулс за творческо вдъхновение").

Secondly, the ALS concept represents an opportunity for the realization of a conceptual model that can affect the development of certain brand identity of many manufacturer of vehicles as well as it can affects the development of other areas of contemporary culture.

Thirdly, the ALS concept represents an opportunity for its implementation as a single ("boutique") model, produced in one or a limited number (limited edition), depending on the marketing strategy of the manufacturer, without excluding the possibility a certain conceptual solution to be launched as a model for mass production.

Lastly the ALS concept may influence the worldview of a person (group) and its (their) future development - as an example of the contemporary associative and creative thinking (a nonlinear model of open system), allowing it to be interpreted in other situations, depending on certain circumstances and necessities. In this connection it is presented a prognosis towards the implementation of the ALS concept in real conditions (Fig. 5).
4. Generalized model for the design of the ALS concept

The ALS strategy includes three major aspects of design - marketing, technical and styling parameters.

- **The Marketing unit** covers the development of leading global trends and innovations in all areas and levels, the emerging public and consumer interests and demands in response to recent market developments, objective analyzes (observations) of the interaction (behavior) of the individual consumer towards his/her own vehicle.

- **The Technical unit** relates to the main structural, functional and ergonomic aspects of the designed model.

- **The Styling unit** reveals the three factors that decisively affect the customer final choice when buying a car (“how it looks like”) - concept, vision (outlook) and message.

The three-component system builds up the overall philosophy of the ALS concept and has been adapted to modern strategies for automotive design and manufacturing. Fig.6.

5. New horizons. "The Light Plot"

Today the dynamic development of lighting systems in modern vehicles, in particular the interior and exterior, remain stable and the hi-tech horizons (the new cultural borders) in that context provide many new opportunities to be revealed and redefined. The behavior (the attitude to creativity) of the contemporary artist in the transportation design field is not different; it has been just forgotten for a while. The right half of the brain appears to have a strong influence on the vehicles surface language again, but dealing with the extended technical knowledge that has been achieved so far. In that relation, the designers are looking for new options to achieve their aesthetic design solutions taking inspiration not as much the great diversity of technical means as the synergistic interaction between light and form. The efforts which the design specialists have been making in the last decade to create a more sophisticated vehicle are pretty obvious and they do not have to be neglected. However, there are some issues related to driving, which do not fully satisfy the drivers of the roadway yet. According to recent studies, a significant part of drivers are middle-aged (50 years) as the reported refers not only to Bulgarian citizens but also to other European countries.

From psychophysiological perspective this group of participants on road can be reasonably considered as precarious (‘rickety’, ‘liable to collapse’). The reason for this lies in the details of the operation and condition (coordination) of the visual system in the elderly people and in particular the way their visual accommodation works (the process by which the eye changes optical power to maintain a clear image of an object on the retina as its distance varies fig.7). [6]. With increasing age of the person, the ability of the visual accommodation significantly reduces, because the lens becomes less elastic. As a result the clear vision becomes a great physical problem to the driver.

Another major problem relates to the higher values of light intensity of the headlights and especially the direct light that confuses the drivers from all social groups (20, 40 and 60 years old). It is a well-known fact that the systemic exposure to direct intense light (glare) leads to changes in the general condition of the human eye and often followed by a chronic disease. Obviously the night lighting system of modern vehicles carry some risks and problems of social, biological, ergonomic, psycho-physiological and sanitary nature. In that context the concept projects and AKIMONO and Audibleyes ALS, (fig.8, 9) give an idea of how the future cars might look like as the light discomfort can be reduced to a minimum. For many, this scenario may seem absurd, but it raises questions that are objective in nature.
Due to those circumstances the hypothesis that has been taken into account is whether it is a reasonable step for the improvement of contemporary vehicles to "lose" the so essential headlights at a certain stage of their development or at least to decrease the intensity of the direct light which has a great impact on human visual system.

The Light Plot (a light scenario) focuses on the advantages that the night vision systems provide in terms of eliminating the glare that affects all drivers on road. Those systems which gradually have been taken into practice remains a "working" solution (a hypothesis) that could influence the issue related to glare. In that context the "Audibleyes ALS" concept gives some perspectives – the symmetrical light panels (with functional and decorative purposes) positioned along the board emphasize the silhouette of the car with diffuse light, while retaining the white light color in front and red rear lights. Thus, blinding light practically could be significantly reduced as the night vision system, introduced as part of driving [10], is to provide information about objects on the road and around.

6. Conclusion

The integration of unconventional (alternative) lighting installations with the application of diffuse illumination of certain surfaces in the car body is an author’s cue having arisen from the deliberate analysis of contemporary trends (objective pros and cons) in automotive design field and the opportunities that the progressive lighting technologies have been recently providing. Thanks to the artistic and functional exterior lighting the surface language of the vehicle reveal a new imagery of the future means of transportation. It is represented in the following prognosis defining some main aspects of The Light Plot (Figure 11):

A. The exterior and interior layout of future vehicles will take increasingly strong sculptural appearance to bring the car image closer to the evolution of a living organism.

B. Due to the high technology progress of lighting systems the automotive lighting systems would change as they would accept the case of being "partially reduced" from the car surface combined with a night vision system to satisfy a higher degree of safety. In that scenario the "Light Modeling" and "Light Modulation" would play a significant role.

C. The interior of the car would turn into an environment that could provide the opportunity for the experience of "relaxation in motion".

The Automotive Lighting Sculpture Concept is an open nonlinear system which allows applying different hypotheses and performances in order to seek new approaches and rediscover new needs in the design of motor vehicles as the issue of the ALS concept does remain open to a broad creative and innovative debate.

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