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A NEW DESIGN CONCEPT: BENCH FOR DAILY ACTIVITIES

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Abstract: This paper has the objective to propose a new Eco-design project and also to introduce the design project of an innovative product in order to improve the use of eco-design for daily activities. Because of the innovative nature of the project, a first study to assess the subject of the project is to be done. So, we focused our project on the activities of design. Before starting the design project, it is essential to propose a planning for every stage of the project from defining the needs to the CAD models. This planning takes place via Gantt chart to represent the different stages of the design process to do with the needed time. The first stage consists in defining the users' needs of the product. This could be realized by collecting the maximum of information to get a vision about the project. So, we made a survey for the users' bench. The next stage is the functional analysis to define the functions of the future product by analysing the different life cycle situations of the product. After that, the phase of creativity is started to find solutions by the design team and a choice of final solution is made. Finally, the final solution is described and evaluated using the predefined specifications document. Based on this evaluation, several modifications are imported to the design.

Keywords: design project, CAD models, bench for daily activities

INTRODUCTION

Eco-urbanism is a new approach to urban planning that is taking into account many restrictions (restraints and indicators) imposing the urban development on the environment. The adjustment degree of eco-friendly urban design is to be seen in every stage of urban planning [4, 7, 9]. Such decisions environment-conscious will lead to a sustainable city in this new information era. The sustainable city model is outlined by the morphology and its complexity [13, 15]. In this model, the city has a core based on different kind of knowledge and technology, maintaining the urban metabolism and the social cohesion [1, 6].

The products developed for performance and for a preferential life cycle are monitored through behaviour analysis within the range of an established period of time and are corrected via feedback in the project stages [13]. The eco-design is meant to deliver eco-friendly products [3, 9, 10]. Ecologically, the assessment of the quality of a product is based on the volume of the damages to the environment during the entire life cycle [11]. The assessment of the damages is a complex procedure that could extend production time and cost [2, 6, 14].

The eco-friendly project consist in different ways of action: the development of a methodology in order to assess the ecological impact; investigating, analysing and synthesizing the implementing procedures of the eco-friendly aspects in order to obtain higher performance in developing the product [1, 2, 6]. For higher eco-friendly performance of the eco-designed products there are used several methodologies, instruments and software, that are created based on the industrial eco-design.

ECO-FRIENDLY DESIGNING

The term urban furniture is used for items and equipment in the public space, installed for different purposes [5, 8, 12]. Urban furniture means benches, street lights, playgrounds, platforms, curb-stones, pavement endings, traffic lights, road signs, bus stations, tram stations, taxi stations, fountains, public statues, traffic barriers and trash cans [17].

The street lights, for example – in order to have spaces to be used during the night time the solution was to lighten them. The public spaces poorly lit are the most dangerous ones, because it is the place of the most crimes. The lighting could be general lighting or accent lighting. The general lighting is obtained in most cases



using tall lighting pillars, uniformly distributed in the public space. Their height is determined by the height of the constructions around [16, 17].

The defining elements of a public space must be outlined with accent lighting. To outline an item, the lighting must be placed very near. The most important elements of a public space are: the main building, the statue or the fountain in the square, an ensemble of buildings, vegetation, and urban furniture [12, 16].

MATERIAL AND METHOD

The paper is envisioning designing a concept for the Coltea park. The project is a bench with a lighting frame (figure 1). The purpose was to maintain the main theme of the park, therefore the design being very suggestive, inspired by the musical note of "two fourths".



Figure 1 - Side view of the piece

The material of this kind of furniture is recyclable plastic, very hard and resistant. This kind of furniture is meant for different purposes (figure 2). The round shape at its base serves as bench, the upper part is a pergola and the other side is open to the park.

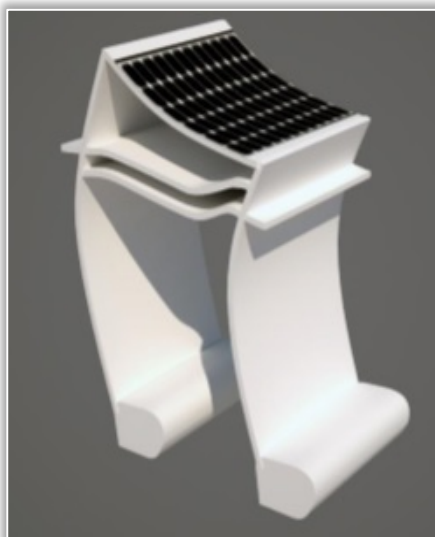


Figure 2 - Side view of the piece

The upper part consists in a solar panel in order to recharge the battery of a phone at the base. The exterior ends have also a lighting purpose at a height of 250 cm.

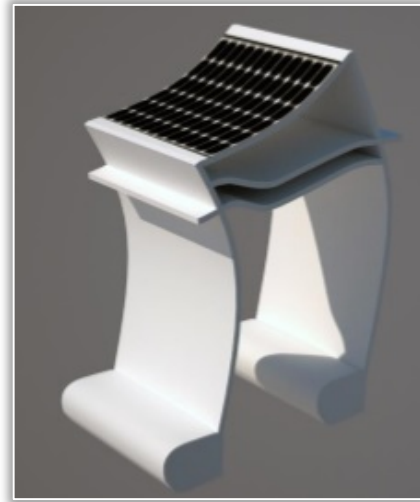


Figure 3 - Side view of the piece

The bench is 120 cm tall, with a width of 55 cm. The distance between the two benches is 150 cm (figure 3). The product is waterproof, easy to clean, flexible to design options, sustainable, better than wood, except the wood composite, and it's easy to paint and repair.

RESULTS

The recycled plastic products are very sustainable and need minimum maintenance. Moreover, these products can be re-recycled at the end of their life cycle (figure 4).

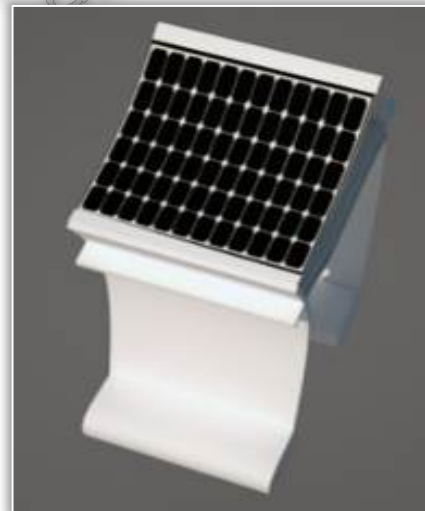


Figure 4 - View from above of the public bench concept

These materials are completely inert, presenting no leaks of chemicals in waters or soil, even in humid environments. The purchase of recycled plastic products stimulates the demand collected for recycling, materials that are saved from the landfill. Instead of being painted, the material is restored only where it presents tiny scratches (figure 5). These interventions do not diminish the product visually.





Figure 5 – Side view of the ensemble



Figure 6 – View of the ensemble with lighting

The light is essential for our wellbeing. A good lighting could transform for the better a room, a building, an item. Depending on the activities that are taking place in a certain space, we would need a direct lighting but also an indirect or diffuse lighting (figure 6). Our product totally respects the consumer's needs as the major component of the development process, strictly connected to the conception of a product, the selection of the best quality/price ratio, the testing of technical and aesthetic performance and also the competitive promotion on the market.

CONCLUSIONS

The innovation concept serves to design, develop and manufacture new products. These new products will have to be able to combine functionality, sensible fabrication methods, use of natural materials and an interface attractive and useful at the same time.

The developing of new products is an important, but risky activity. Usefulness means to meet certain physical and biological human needs at the level of performance for which the product has been conceived. Our product is no exception. Therefore, the ensemble has a usefulness based on the general human needs: to artificially create a good environment for different activities. From the usefulness we get to the end use of the product.

The ensemble is for large, crowded spaces, and without the natural light is the perfect product for those who are out after dark. As any new product, it must replace an old one. As such, an essential criterion is to introducing a new feature for the user's benefit or to enhance the technical performance of the previous product. Our product totally fulfils that request. Another important aspect is that the product must be innovative and attractive.

To develop a new concept is never an easy or direct activity; it requests careful research, right planning, and deep control. Therefore, it is a multidisciplinary approach, with methods form marketing, engineering and industrial design. Combining social sciences, technology and practical arts is never easy, but mandatory in order to meet the demand.

No matter the product, it must be very careful designed in order to be efficient. It must be comfortable, inexpensive, easy to use or repair, simple, economical, ready to be manufactured and distributed in order to have a powerful advantage on a competitive market.

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