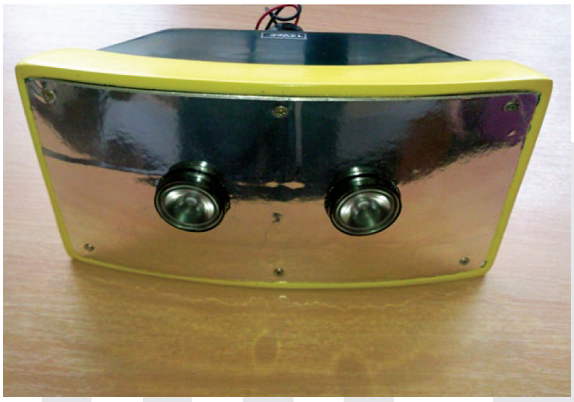
Development and testing of high-power LED street light prototype and OHIM (EU) patented design

Goal of the project:
Developing the prototype of a high-power LED street light with superior technical performances and lower cost and developing a case with aesthetic and functional characteristics in order to be highlighted among other European producers.

Short description of the project:
This project started when the beneficiary, SC Mariomih SRL, intended to assimilate the prototype of a LED street light, with superior technical performances and lower cost compared with those of the competitors on the market.

Also, another aspect which concerned the research team was developing an esthetic and functional case for the street lamp which would consolidate its position among other European manufacturers.

This comes in a time when Chinese manufacturers monopolize the "Cobra" design and a new Romanian manufacturer – SC Electromax SRL – had to develop a case in shape of an A4 paper. So, the research team had to combine industrial with demonstrative research.



In terms of experimental industrial research, the research team tested for energy efficiency some of the best LEDs on market (Cree and Samsung). In terms of efficiency, the team turned to those LEDs which have an efficiency of 120-140 lm/W in order to have a higher grade of luminescence than other products at 40-50 absorbed Watts. So, in order to choose the LEDs the goal of the team was to reach the best ratio between the light intensity and the power consumption and also a wider light spreading angle to fulfill the minimal imposed standards.

This final task was completed both by the LED parameters provided by the manufacturer and the shape of the case.

The arc of circle model for the case - an atypical one – is certified by both OSIM (Romania) and OHIM (EU). This model was taken over by the beneficiary of the project, using the transfer of manufacturing license, for use in the future production department, where one of the models proposed by the research team will be produced.

Project implemented by:
SC MARIOMIH SRL

Main activities:
•developing the prototype of a high-power LED street light with superior technical performances and lower cost;

•choosing LEDs with a smaller ratio between the light beam intensity and power consumption, and also a large enough light scattering angle to fit into the minimal standards required by law;

•developing a case with superior aesthetic and functional characteristics.

"We cannot hold a torch to light another's path without brightening our own."
Ben Sweetland

Results:
Experimental models:
•Light bulb powered by a 12 V and 1000 mA D.C. solar panel;
•Street lighting lamps for parks and parking lots fed by 12 V and 1000 mA D.C. solar panels;
•Ceiling light with 100 5mm LEDs;
•Street lighting lamp with 300 5mm LEDs;
• Street lighting lamp with 5 light bulbs in "Cobra" case, powered directly from 230 V mains;
•Street lighting lamps with MC-H chips and Samsung LEDs - powered directly from 230 V mains - or 494 lumens Cree LEDs;
•Highway lighting lamps equipped with 3 kitsof 3000 lumens each.

Implementation period:
29.06.2012 - 04.12.2012

Fields of interest:
Energy and Environment

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