

## Design and Development of a Public Lighting System for Indian Urban Sector



**A. Ramesh Kumar**  
rameshcnp87@gmail.com  
Ph.: 0 97385 79583

<b>Student's Name</b>	<b>A. Ramesh Kumar</b>	<b>PD (FT-2012)</b>
<b>Academic Supervisor(s)</b>	Vignesh Ravichandran and B. Rajatesh Nath	
<b>Industrial Supervisor(s)</b>		

**Keywords:** Public Lighting, Efficiency, Usability, Urban, Working Model

**Abstract:**

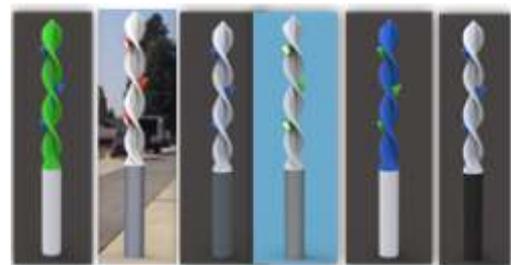
India has the second largest urban population in the world with more than 300 million people living in towns and cities. By 2021, we are expected to cross 40% with 74 million-plus urban agglomerations. Public lighting is one of the most important and expensive responsibilities of an urban city. Today, public lighting commonly uses incandescent, High Pressure Sodium (HPS), Low Pressure Sodium (LPS), Mercury Vapor (MV), Metal Halide Lamps (MH), and Compact Fluorescent Lamp (CFL) are the most common technologies used for public space. This lamp consumes high energy consumptions. Lighting can account for 10–38% of the total energy bill in typical cities.

The purpose of this project is to improve the lighting design and reduce energy consumption. Energy efficient technologies and design can cut lighting costs dramatically (often by 25-60%); Data collection was carried out by adopting methodologies such as literature review, product study, market study and product environment study. Trend study was carried out to understand the trends in similar products over a period of time. Stake holders were interviewed in ethnography and personal interviews to understand their needs and aspirations. QFD and PDS were generated based upon data analysis. Concepts were generated with respect to the derived PDS and shortlisted by participatory method. Various issues and needs identified through data collection have been addressed in developed concepts. Final concept was selected by weighted ranking method. A detail design was made for the final selected concept in the digital modelling and rendered.

The scope of the project covers optimization of a well-designed, energy-efficient Public lighting system for urban sector. A 1:2 working model had been made to validate the final concept and feedback was collected from users. The main result of the project is the reduction of energy cost and made good visibility. Major user needs such as simple interface for functionality, efficiency, aesthetics and usability were satisfied by the final design. User response on final design was positive and satisfying. Finally the expected energy saving would amount to nearly 50%.



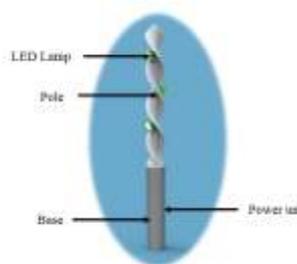
**Various concepts of public lighting system**



**Digital rendering**



**Digital model at urban sector**



**Final product**



**Physical model**