



REGENT EDUCATION & RESEARCH FOUNDATION GROUP OF INSTITUTIONS

PROJECT ON  
AUTOMATIC SOLAR STREET LIGHT  
REGENT EDUCATION AND RESEARCH FOUNDATION  
GROUP OF INSTITUTIONS



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## AUTOMATIC SOLAR STREET LIGHT

### Introduction

Since people have been coexisting, there has been street lights. Ancient Romans used oil lamps filled with vegetable oil in front of their homes as early as 500 BC. William Murdock utilized a coal gas-powered gas light in 1802. Soon after, in 1807, the English city of London made the decision to employ gas lights to illuminate a full street rather than simply the fronts of homes. These gas lamps were first used in the United States in 1816, though. The first city to use gas lights was Baltimore, Maryland. Improvements were made to the gas lights, and the more energy-efficient electric lights were switched in their place.

The first electric street light to use arc lamps was the Yablochkov Candle, created by Pavel Yablochkov in 1875. In Paris, France, three years later, the city started replacing the gas lamps with electric ones and had already replaced roughly 4,000 street lights. In response, 130,000 arc lighting were placed on numerous city streets in the United States by 1890. Once electric street lights were introduced, advancements were made gradually. There are many different lights available today. Many conventional street lights are energy efficient, but some extremely old street lights that are still in use are not. If the systems are configured properly, solar photovoltaic street lighting have the potential to be very energy-efficient. The differences between conventional and solar illumination will be discussed.

Contrary to typical street lighting, solar street lighting is a relatively new invention. There is no electrical power grid connection for these street lights; instead, the solar light will generate its own energy from the sun (photovoltaic panel) and store it in a battery until it is sufficiently dark for the light to turn on. Off-grid solar illumination applications come in a variety of forms. A micro grid, which is effectively a miniature power grid used only for the lights, is one way the solar panels can be connected. Another option is for each street light to operate independently.

Solar photovoltaic technology uses an electronic process that takes place in specific materials known as semiconductors to produce power directly from sunshine. Nowadays, thin-film semiconductors or crystalline silicon are used to make the majority of solar cells. Although expensive, silicon has been found to be quite effective at turning sunlight into power. Thin-film materials are occasionally utilized because they are more affordable. The drawback is that these materials need greater surface area to generate electricity and are less efficient than silicon.

### Proposed system for Trial:

Our proposed system is sub divided into four sections:

1. Solar Panel
2. Control Unit
3. Battery storage unit
4. DC Light.

During the day time solar panel receives its I/P from the Sun rays. At the same time the control unit is also functioning for charging the battery and giving the over voltage protection also. At sunset Solar panel is unable to receive the I/P from the sun and the light will be functioned through control unit.

When the battery storage unit is reaches to 90% discharge condition, the storage unit will be automatically disconnected and light will remain ON condition through the main power supply. This action is also being performed by the control unit.

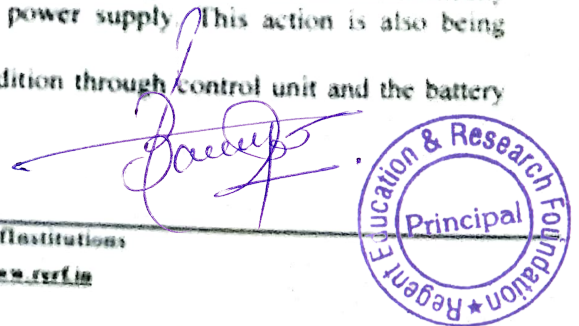
Again, during the time of Sunrise, the light will be going to OFF condition through control unit and the battery will get charged and the cycle is going on.

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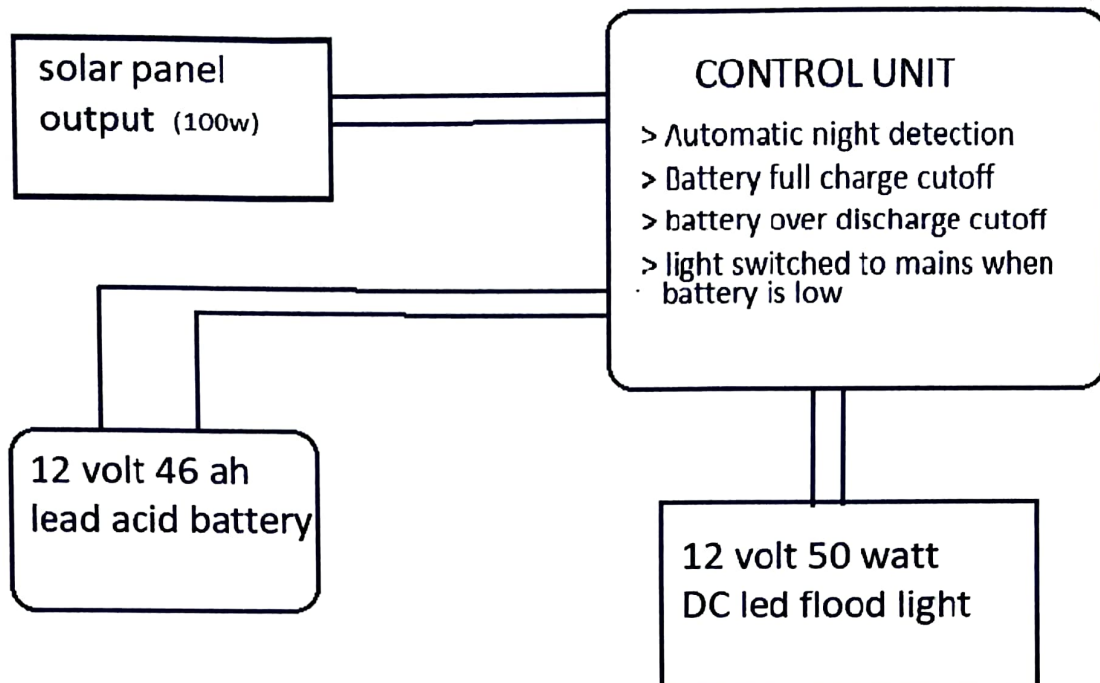
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Block Diagram:



Cost:

SL.NO	APPARATUS NAMES	APPARATUS QUANTITIES	APPARATUS PRICES (in Rs.)
01	JUNCTION BOX	1	55
02	VERO BOARD	1	55
03	CONNECTER	4	52
04	555-IC	1	24
05	TRANSISTER	4	20
06	VR POT	4	25
07	INDICATOR LEDS	5	20
08	RELAY	2	50
09	WIRES		50
10	DC LED (25W)	2	300
11	MAKING COST		100
12	SMPS	1	500
13	NUTSPSCURES		50
14	BATTERY	12V 42AH	4000
TOTAL PRICES (in Rs.)			5301

### Conclusion

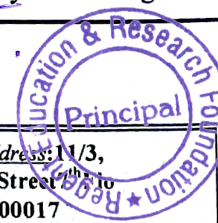
By this project, we are trying to establish an approach through which we are provided hands on training of our students to the renewable energy as well as make our campus green. Definitely the initial cost of this type flood lighting system is higher in comparison with traditional flood lighting system type flood lighting system is higher

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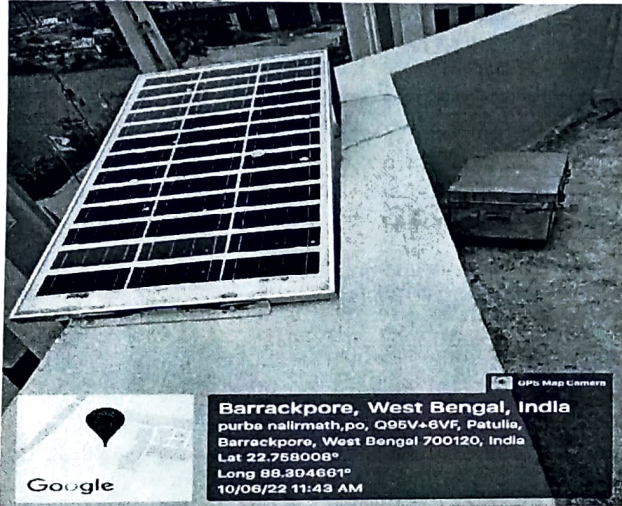
in comparison with traditional flood lighting system. But cost associated with energy consumption will be affected to some extent.

Last but not the least it should be mentioned that this system is implemented in trial basis but in future we will trying to cover all the flood lighting of our campus under this category.

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### Geo-Tagged Image:



*[Handwritten Signature]*

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