VISVESVARAYA TECHNOLOGICAL UNIVERSITY
BELGAUM – 590 014

A
PROJECT REPORT
ON

"SOLAR PHOTO-VOLTAIC DUSK DAWN SWITCHING SYSTEM"

(Sponsord By Karnataka State Council For Science And Technology)

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ABSTRACT

Free electricity from the sun would appear to be the future power of our generation. With such abundant sunshine, we should be using solar powered traffic lights, solar highway lights, solar streetlights, and many applications. Here two lighting systems will be designed, developed and tested: one system employs LED (light emitting diode) technology and the other uses CFL (compact florescent light) technology.

Solar modules (photovoltaic panels) are one of the most important assets to most renewable energy system. Its works by converting sunlight directly into electricity energy and will make the street light turn on automatically just after dusk and turn off automatically at dawn. All solar systems need at least 1 battery to store energy. The energy can be stored in batteries and use later on after dusk.

i) this project required in designing the light detector to make the street lighting operate only in night/dull mode. It make sure that the voltage supply for the load is 12 volts to avoid overvoltage and 9 volts will cut-off the load from supply to make sure the lights do not dim. For the lighting, the street light will use super bright LED; replace the filament 12 volts car lamp that is used before.

ii) The commercial CFL lights are ac powered and for dc operation with photo-voltaic energy, a new inverter design is implemented. The inverter efficiency is better than 95% and the total harmonic distortion (THD) is less than 15%. The inverter is essential when hybrid operation (solar as well as ac line) is desired. For stand-alone solar application, it will be shown that the CFL lights can be directly operated from dc source and thus eliminate the inverter to minimize power losses.