

VISVESVARAYA TECHNOLOGICAL UNIVERSITY
JNANA SANGAMA, BELGAUM – 590014 KARNATKA, INDIA



Project Report on

**MULTI-UTILITY SOLAR ENERGY
CONCENTRATOR**

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Submitted in partial fulfillment of the requirements for the award of degree of

**BACHELOR OF ENGINEERING
IN
MECHANICAL ENGINEERING**

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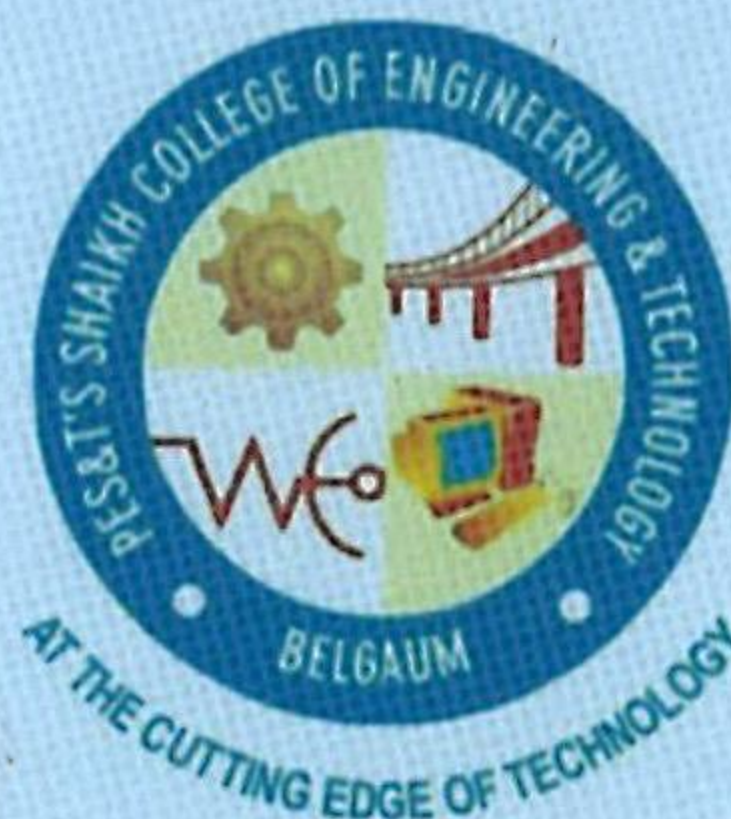
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ABSTRACT

Four-fifths of the sun's energy falls on the oceans and drives the water cycle. The one fifth of the sun's energy falls on the land and is still about 2,000 times greater than total world energy demand. The three main technologies that have been developed to capture this energy are Passive Solar, Solar Thermal, and Photovoltaic modules. There are a variety of types of technologies associated with solar power. These technologies can be divided into two groups. The first groups are those that use the sun to generate heat, called solar thermal technologies. Solar thermal technologies include solar concentrator power systems, flat plate solar collectors, and passive solar heating. The other group of solar power technologies directly converts solar radiation into electricity through the photoelectric effect by using photovoltaics.

Our project is based on solar thermal collector technology, we use Fresnel lens as solar thermal energy collector. Fresnel lenses of imaging and non imaging designs are one of the best options for solar energy concentration. The present status of application, the ongoing research and development works suggest that Fresnel lens solar concentrators will bring a breakthrough of commercial solar energy concentration application technology in the near future.

The purpose of this project is to reduce environmental pollution by the use of solar energy which is available in large quantity. here we use large lens to collect solar energy, our main intention is to make an solar concentrator using the Fresnel lens such that it can be used for number of thermal applications like Industrial process heat (IPH) applications below 250°C, (which contribute to about 15 to 20% of India's total oil consumption), cooking, electricity generation, forging, solar furnace, water heating etc.

And we want to make this technology economic as much as possible.