SOLAR BULB

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APPLICATIONS

- In mines & factories where safety is the prime concern. To avoid spark which cause fire accident, solar bulb will be effective.
- In lower floor & basement of multi storeyed building/malls. Particularly in tunnels, where we need lights all the time.
- It will encourage us for home gardening. Small plant can be grown using natural sunlight inside our homes. This will not only provide fresh air but also reduce mental stress. This is also applicable for hospitals.
- On the successful implementation of solar bulb, government can initiate large scale production with no running cost to provide lights at remote place where electricity is not available.

INTRODUCTION OF SOLAR BULB

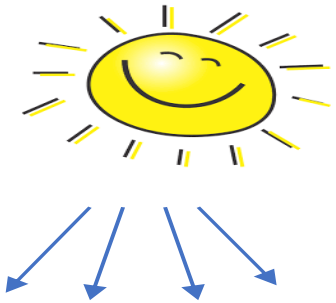
- 1050 W/sq m falls on earth surface.
- Always 2/3 of earth surface receives solar radiation.
- But still solar power provides 4.5% of total electricity production.

WHY SOLAR BULB?

- Reduces the consumption of Electricity.
- Availability of natural day light in slum areas and safety-critical place e.g., mines, factories and tunnels.
- Full Spectrum of visible range light.
- Provide vitamin D and reduces bones problems, skin problem, mental stress etc.
- Durable and no running cost.

DESCRIPTION OF SOLAR BULB

Block diagram:



Parabolic mirror
Receives sunlight

Receiver
Receives light at focus of mirror

Heat filter
Removes infrared light

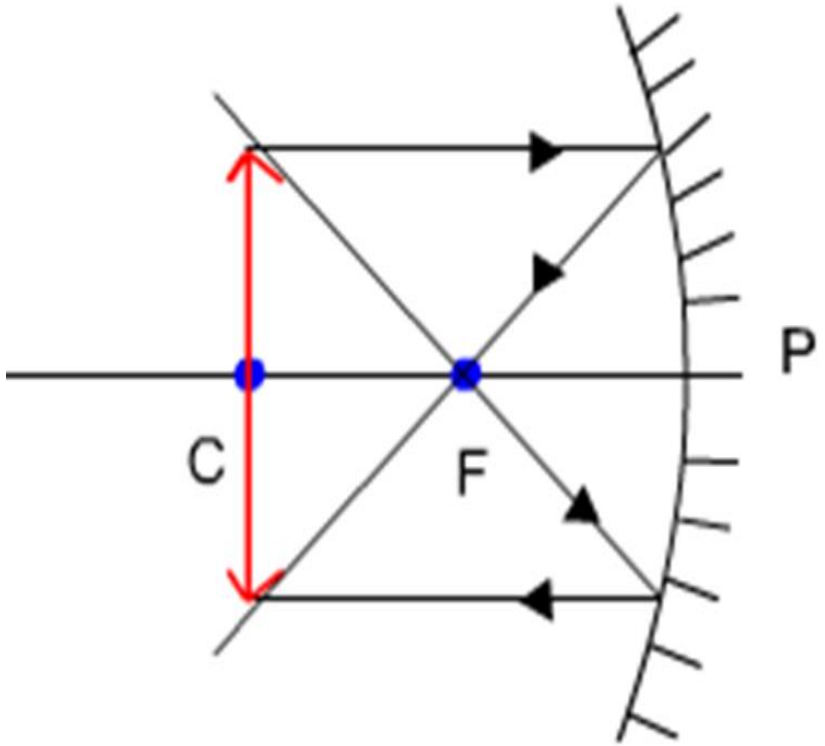
Optical fibre
Transmit light

Diffuser
Diffuse light beam in our home

Finally we get natural day light in our home

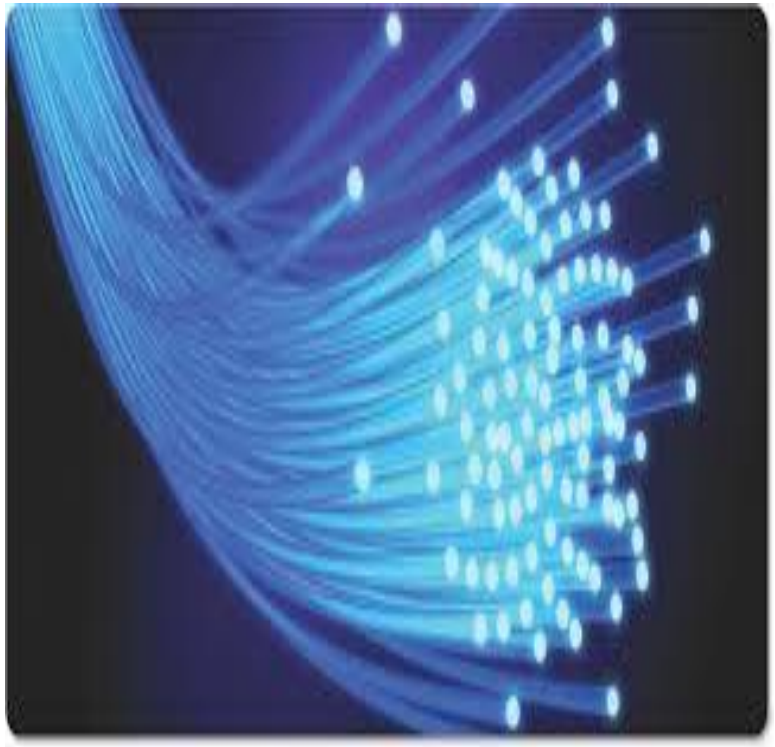
LIST OF COMPONENTS

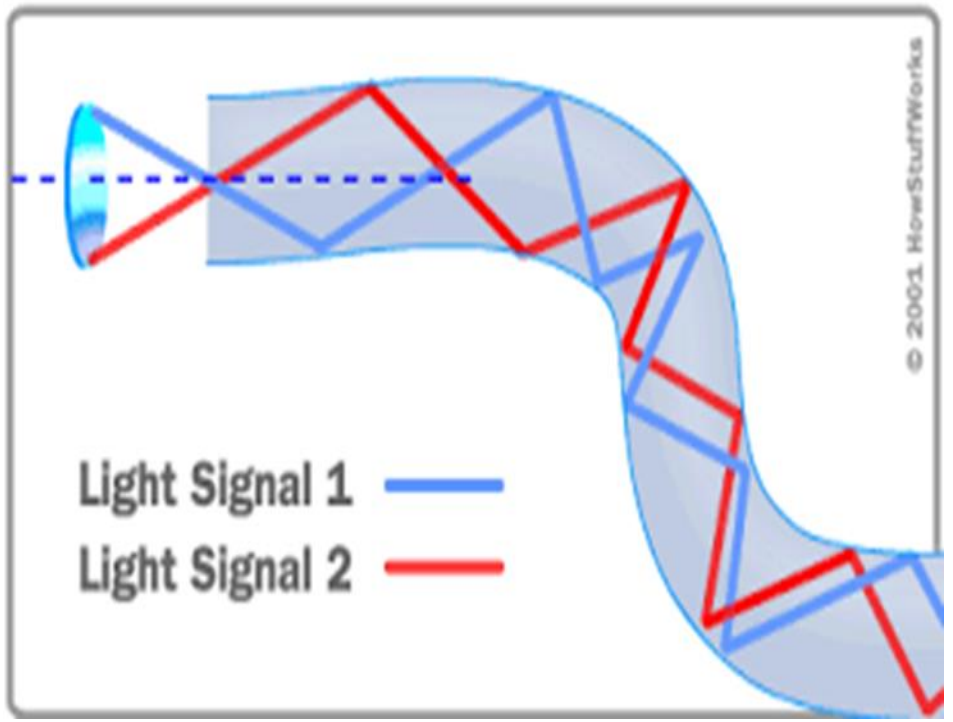
Concave Mirror



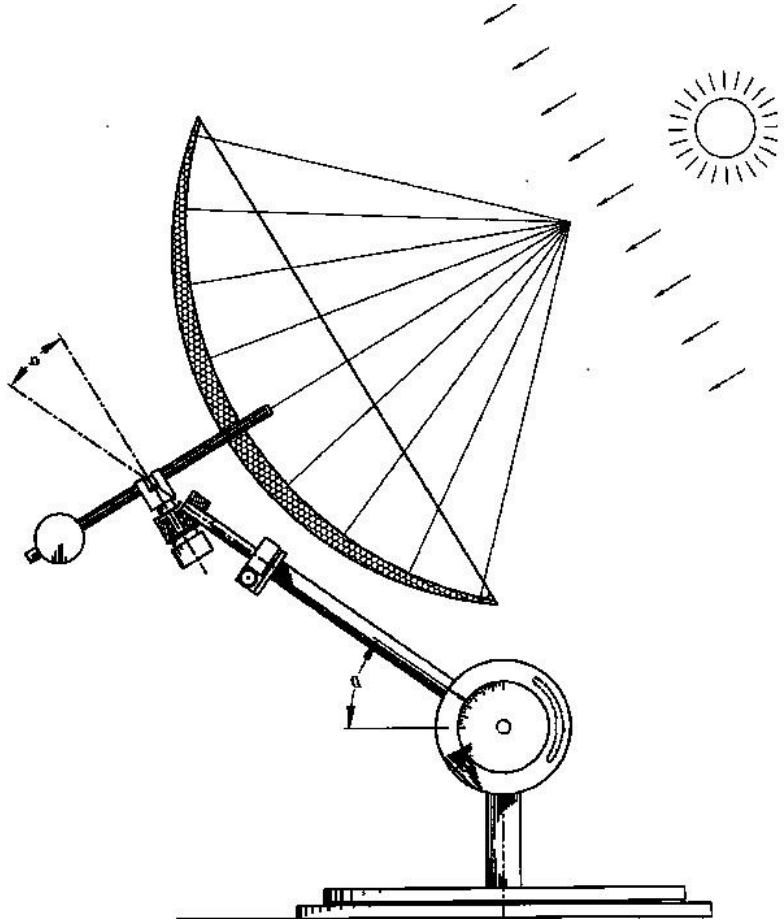
LIST OF COMPONENTS

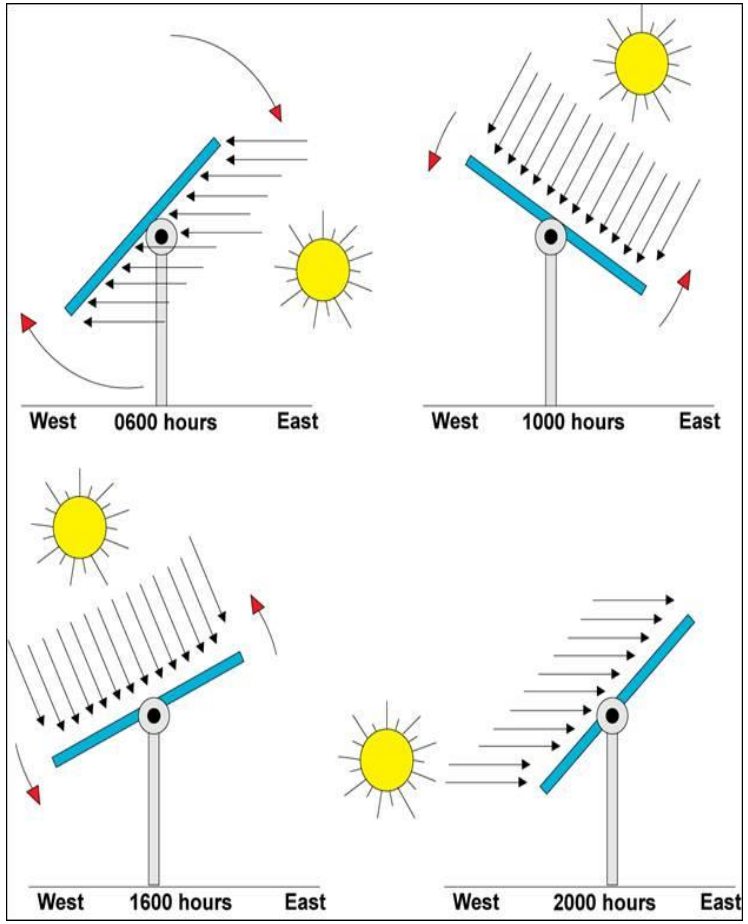
Optical Fibre



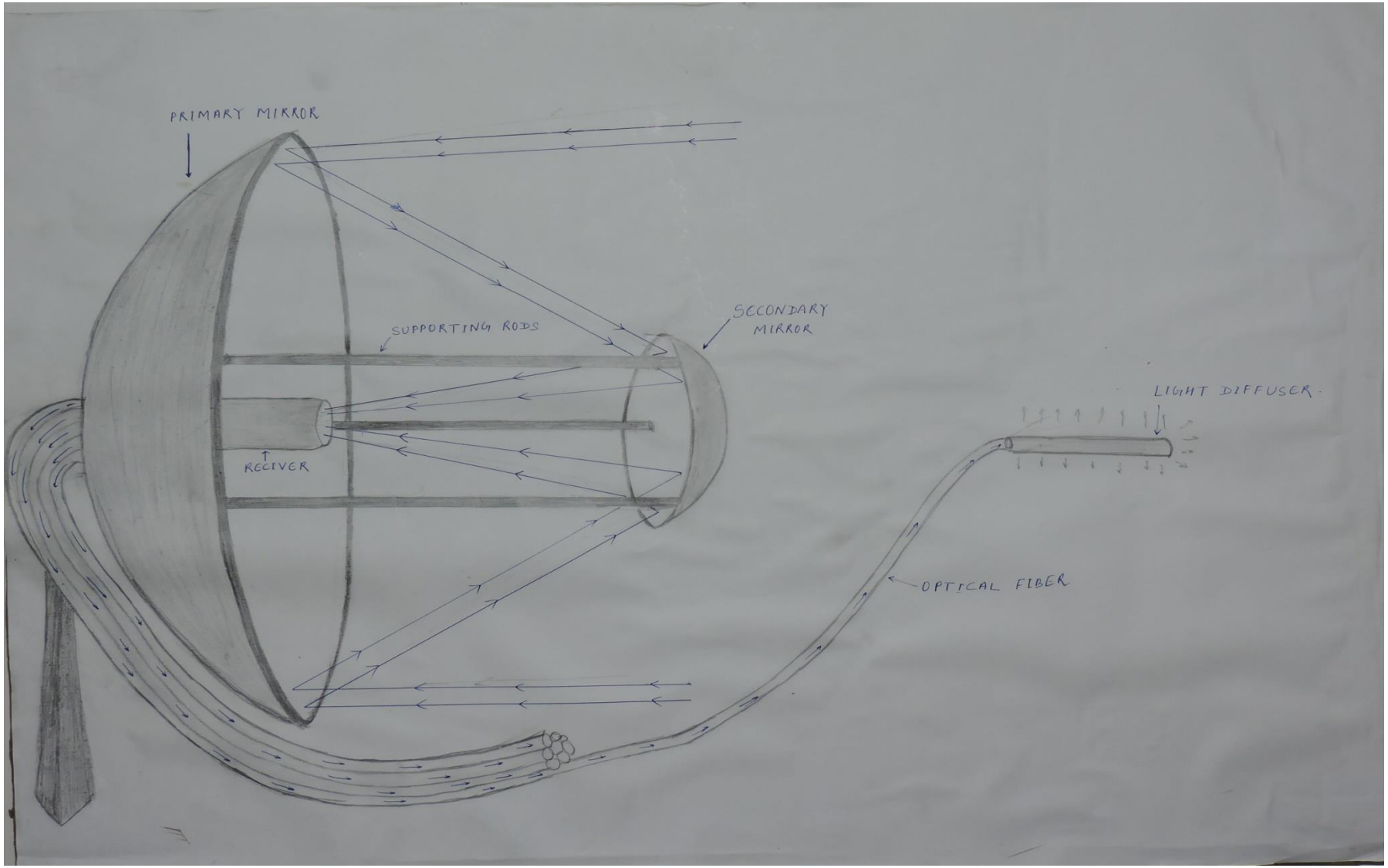


DUAL AXIS SOLAR TRACKER

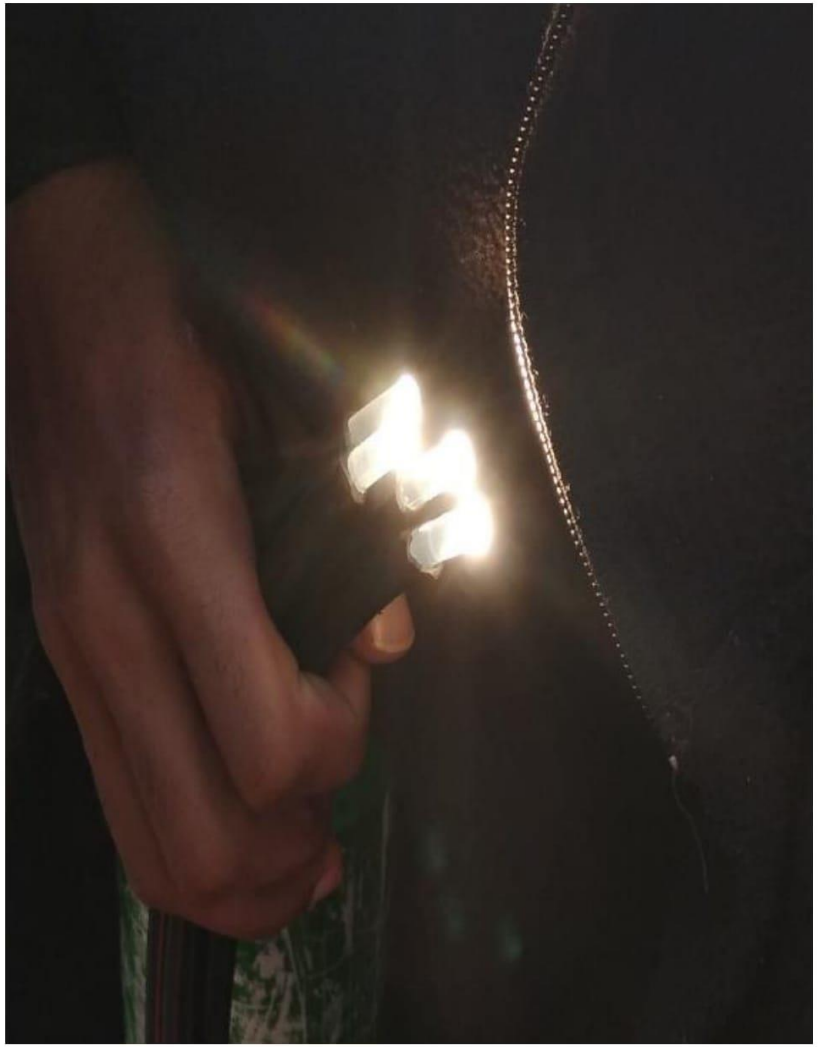




PICTURE OF PROPOSED SETUP



PICTURES OF SOLAR BULB PROTOTYPE



COST CALCULATION OF PROTOTYPE MODEL

For Solar Bulb (60 W)

Average intensity of solar radiation in India = 200 W/m^2

Calculated Area of Parabolic Mirror = 0.30 m^2

Power captured by Mirror= (200 x 0.3) = 60.0 W

Estimated life of Solar bulb = 20 Years

Running cost of Solar Bulb = Rs. 0.0

Installation cost of Optical Fibre (5 mm dia, 10 m) = Rs. 2000

Installation cost of other components = Rs. 600

Total expenditure= Rs. 2600

IMPACT ON SOCIETY

- Our nation is in developing phase and to fulfil the demand of energy is very challenging. Because it will be very risky for our environment to be dependent on fossil fuel. So renewable energy technologies are the best way to get rid fossil fuel combustion.
- This solar bulb will help us to harvest solar energy with high efficiency and also decrease the consumption of electricity.
- If we will get sun light in our homes then it will provide vitamin-D to our body, decrease the bones and skins problem. And also reduce the problem of mental stress.
- In coming days light pollution will be one of the problem for our society, this solar bulb will helps us to control the light pollution.

LIMITATIONS

- It can be used only in day time
- Proper cleaning of mirror surface will be needed

PROPOSED OUTCOMES

- Feeling of natural light in room
- Cheap and easily installable.
- Healthy and stress free lighting.
- It can save large amount of electric energy.

THANK YOU