

# SRNK GOVT. DEGREE COLLEGE, BANSWADA

KAMAREDDY (DIST.), TELANGANA.

(AFFILIATED TO TELANGANA UNIVERSITY)

NAAC ACCREDITED WITH 'B' GRADE



## JIGNASA 2017-18

STUDENT STUDY PROJECT

DEPARTMENT OF PHYSICS

TITLE: "SOLAR HOT DOG COOKER"

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TOPIC

**SOLAR HOT DOG COOKER**

# INTRODUCTION / RELEVANCE OF THE TOPIC

The energy which comes from sun is known as “SOLAR ENERGY”.. The efficiency of solar energy is increasing day-by-day. In the past the use of solar energy is 5%.

After sometime it is increased to 10%. Now it is increased to 46%.

As we compare to the electric energy the solar energy is less in using.

Now-a-days the probably using of electric energy is more in ways of rice cookers.

Day to day life the using of rice cookers is more. In that efficiency of electric energy is high.

So consumption of electric energy we should have to use solar energy mainly. This solar hot dog cooker works on the principle of photo voltaic cell. It is not an expensive to use solar energy. It can be available freely in nature.

## **2. OBJECTIVES:**

1. Solar energy collection
2. Solar energy storage
3. Principles of solar radiation
4. Provide skills and employment opportunity

## **3. MATERIALS AND EQUIPMENTS:**

We will be construct the model of parabolic solar collector that will cook a hot dog. Therefore the following materials are used such as

- i) 14 inch (or) 35 cm sheet of aluminium foil.
- ii) 11\* 14 inch (or) 28\*35cm piece of poster board.
- iii) One unpainted wire coat hanger.
- iv) Cell phone (or) masking tape.
- v) 2 boxes, one for the collector and one for stand.
- vi) 2 nuts.
- vii) 2 bolts.

## **4. Methodology:**

For the working of hot dog cooker the following methods are used.

1. Experimental method
2. Observation method
3. Analysis method

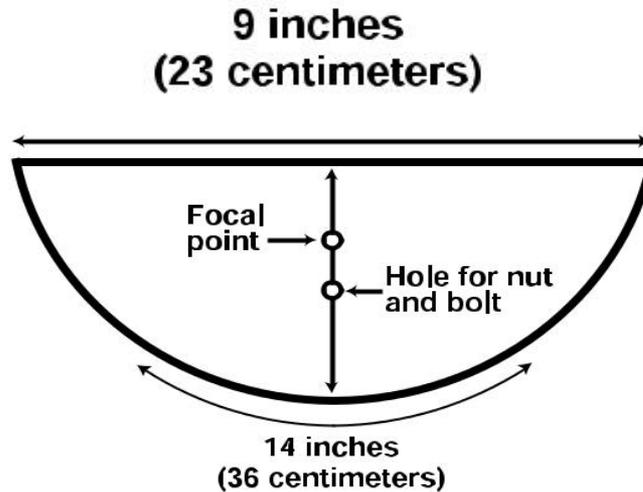
## **5. Findings and Analysis:**

For a construction of solar hot dog cooker we were approach the stack holders such as company or Industry, the poster boards at art supply stores, the nuts and bolts at a hardware store, the old boxes from a grocery store.

## 6. Presentation:

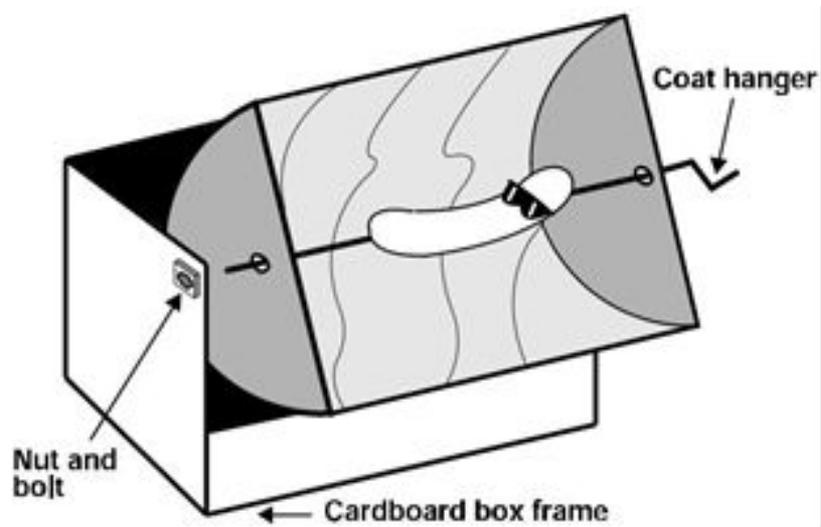
In our day to day life for cooking food the electric cookers are used. But to consume more power we will construct solar hot dog cooker as follows

1. Let us make the ends of the parabolic trough out of the card board using a pattern as shown below diagram.



2. Tape the aluminium foil to the piece of poster board.
3. curve the poster board and tape it to the two curved ends.

4. Attach the trough to the box frame using nuts and bolts. Make sure the trough can move up and down ,but will stay in one place.
5. Put holes at either end s of the trough focal point.
6. Straighten the wire coat hanger and bend one end to make a handle as shown below diagram.



7. Put the hot dog on the coat hanger and push the coat hanger through the hole on the other side respectively.

## 7. Working :

The Experimental working of the solar hot dog cooker as follows

1. Let us place the solar cooker in front of the sun rays . And arranged the mirrored trough faces towards the sun.
- 2, Adjust the trough up and down until the mirrored surface focuses the sun on the hot dog.
3. then the sun rays allowed to fall on the hot dog to cook the hot dog .
4. In this process a parabolic collector is made up of a trough and a tube running down the centre of the trough.
5. The trough is a long rectangular mirror formed in 'U' shape.
- 6The mirror is tilted towards the sun to focus the sun light on a tube.
7. The parabolic shape is perfect for focusing the sunlight on the tube .
8. This parabolic tube carries the fluid to be heated.

## 8. Applications :

According to solar energy so many applications are there in our day to day life respectively. But some of them more important applications are

1. Presently the solar energy used in photovoltaic cells. The cell which is used to convert sun light into electric current is called photovoltaic cell.
2. it is used in solar heating and cooling substances.
3. It is used in solar distillation and drying.
4. It is used in bore motors of agriculture.
5. It is used in street lights etc.....

## 9. Limitations :

1. The solar energy pannels are high cost
2. In the year 2014 the efficiency of solar energy is 46% only.
3. The solar energy most probably more effectively used in Gujarat state when compare to telangana state.
4. The government should give the subsidy in this solar energy pannel installation.

# CONCLUSION

After some years the natural resources such as water and coal were gradually decreases.

Therefore the production of electricity also decreases.

Hence to survive our life we will require solar energy.

This solar energy is freely available in nature so that this solar energy is used to obtained so many advantages as mentioned above.

Instead of using electrical cookers to consume electric power we have to use the solar cookers.

Therefore the government conduct the programs to bring awareness in people about solar energy utilization.

# References

1. Centre for science education.
2. U.S. department of solar energy.
3. Florida solar energy centre.
4. International solar box cookers.



Thank you  
Sunshine!