

**A Project Report**

**on**

**“Development of Solar based induction stove”**

**Submitted by**

**Ajmera Navya**

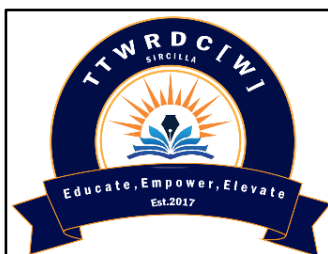
**(20077104457001 )**

**Under the guidance**

**Of**

**K Vanisri, M.Sc, SET, (PhD)**

**HOD, Department of Physics**



**Department of Physics**

**Telangana Tribal Welfare Residential Degree College(W),  
Rajanna Sircilla.**

**(Affiliated to Satavahana University)**

**Academic year 2022-23**

## DECLARATION

I, Ajmera Navya, hereby declare that the project report titled "Development of a Solar-Based Induction Stove" was carried out by me from August to September 2023, under the guidance of K. Vanisri, at TTWRDC (W), Thangallapally.

I affirm that:

The work presented in this report is original and has not been submitted elsewhere for any other purpose.

The project report represents my own work and reflects my understanding of the subject matter.

Date: 24-09-2023.

Name of the student

Place: TTWRDC (w) Thangallapally


Ajmera Navya

**Telangana Tribal Welfare Residential Degree College for Women,  
Thangallapally, Rajanna Sircilla  
(Affiliated to Satavahana University)**

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**CERTIFICATE**

This is to certify that the project report title " Development of Solar Induction Stove" as the part of new innovative Projects completed by Ajmeera Navya, HT.no. 20077104457001 under the guidance of K. Vanisri,DL in physics. This has not been submitted to any other institute or university for the award of any degree.



**Signature of the guide**



**Principal**

**Principal  
TTWRDC(W)SIRCILLA  
Dist: Rajanna Sircilla**

# Project report on solar induction stove

(Green initiative under Sustainable development goals (SDG))

**Project name:** Solar based induction stove

**Mentee:** Ajmeera Navya

**Mentor:** K.Vanisri,DL in physics

## **Purpose:**

As the part of Sustainable development goals (SDG) and energy efficiency indicators department of Physics decided to use renewal energy resource solar power for daily usage in college campus.

We have used this solar power to lighting and fan in the mess hall as the part of energy conservation measures.

## **Objectives of the project:**

- To reduce cooking fuel (LPG) and power consumption.
- To encourage the students towards energy conservation and sustainable development goals.
- Promoting the use of a sustainable and abundant energy source that does not deplete natural resources.

## **Idea of the project:**

On the occasion of National science day 2022, students participated in poster presentations and discussion with all other students and faculty about innovative ideas in science. They came with lot of ideas.

From all the ideas Principal madam and other science faculty selected one best project I e., Solar based induction stove which was proposed by Ajmeera Navya,MBZC,3rd year.

After that she developed the theory and estimation of project cost along with K.Vanisri,DL in physics (mentor).

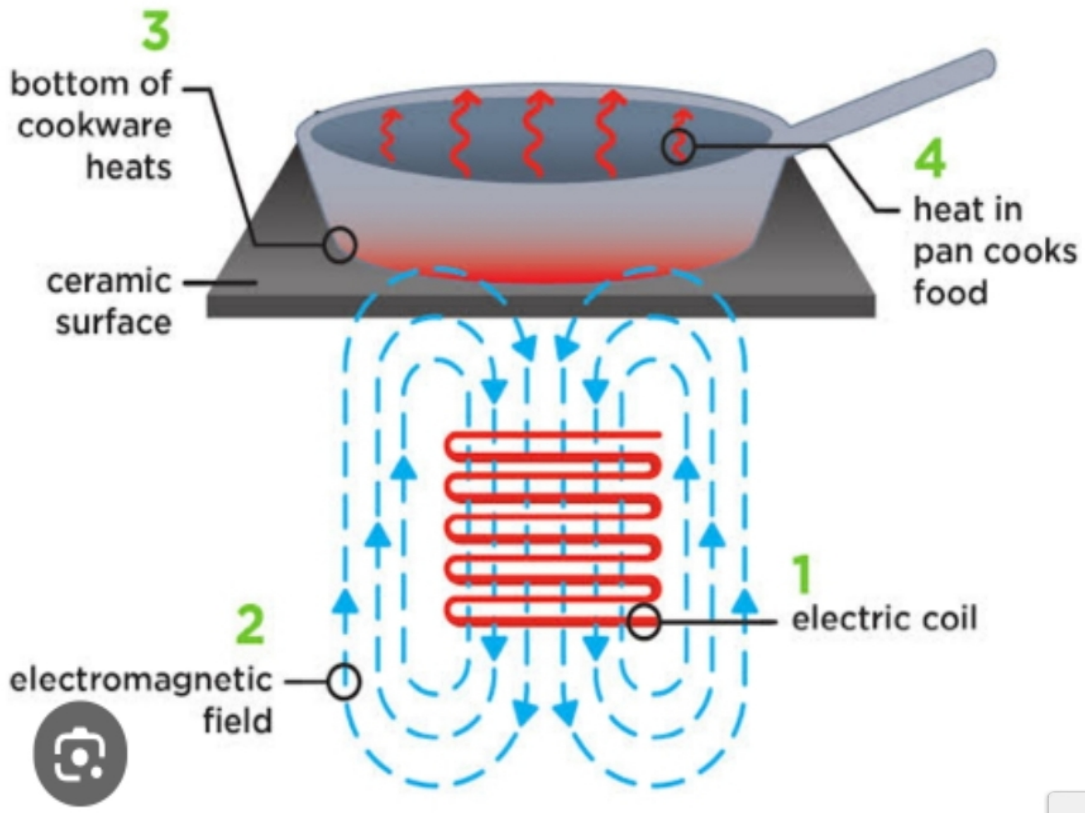
Principal madam and the student Navya went to collector office and share this idea with the collector, after listening about the idea collector sir appreciated the student and he funded the required cost for the material.

### **Introduction:**

The induction stove is an innovative cooking appliance that operates on the principle of electromagnetic induction. Unlike traditional gas or electric stoves, which rely on direct heat transfer, an induction stove generates heat directly in the cooking vessel through electromagnetic induction. This project aimed to explore and explain the working principle of an induction stove with solar energy in detail.

### **Working principle of induction stove:**

An induction cooktop uses an electromagnetic field to heat food. When the cooktop is turned on, an electric current passes through a coil of metal, creating a magnetic field. This magnetic field then penetrates the metal of a cooking pan, inducing a current in the pan. The current then dissipates energy in the form of heat, cooking the food in the pan.



## Required material:

| S. No | Item name                                       | Quantity |
|-------|---|----------|
| 1     | Solar panel (320 watt)                          | 1        |
| 2     | Lead acid battery                               | 1        |
| 3     | Charge controller(mppt)                         | 1        |
| 4     | Mother board(2000 watts)                        | 1        |
| 5     | Copper coil                                     | 1        |
| 6     | Fan   | 1        |
| 7     | Heat sensor                                     | 1        |
| 8     | On/Off switch                                   | 1        |
| 9     | Green push button switch                        | 1        |
| 10    | Heat sink paste(10g)                            | 1        |
| 11    | Digital LCD display( induction stove top plate) | 1        |
| 12    | Connecting wires for solar panel                | 1        |
|       |   |          |

We received all the material in the month of August and we did work on the project development.

First we connected induction stove circuit and it worked perfectly with raw power.

Next we connected this induction stove to solar panel through inverter and battery. But we got over load problem in the inverter.

We discussed about this problem and we changed mother board capacity to 1200 watts.

After that we again checked the working condition of induction stove with solar power. Finally we observed that induction stove working perfectly with solar power without any overload.





## **Measures for energy conservation in the campus with solar energy:**

As the part of energy conservation we have also used this solar energy for lighting and fan in the mess hall to reduce power consumption.

**Conclusion:** solar energy is abundantly available energy, by using the renewable energy resources we can reduce conventional energy consumption and environment pollution.

**Future scope:** we have developed ac induction stove by using solar panel. It requires battery to store solar energy and inverter to convert DC power to ac power. Next we want to develop induction stove which works on DC solar power.