



# Karnataka State Council for Science and Technology

(An autonomous organisation under the Dept. of Science & Technology, Govt. of Karnataka)

Indian Institute of Science Campus, Bengaluru – 560 012

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**Dr. U T Vijay**

Executive Secretary

19th April, 2024

Ref: 7.1.01/SPP/37

To,

The Principal

Alva's Institute of Engineering and Technology

Shobavana Campus Mijar

Moodbidri - 574 225

Dear Sir/Madam,

Sub : Sanction of Student Project - 47th Series: Year 2023-2024

**Project Proposal Reference No. : 47S\_BE\_1171**

Ref : Project Proposal entitled **HUMIDITY CONTROLLED SOLAR PEPPER DRYER**

We are pleased to inform that your student project proposal referred above, has been approved by the Council under "Student Project Programme - 47th Series". The project details are as below:

<b>Student(s)</b>	Mr. VIGNESH	<b>Department</b>	MECHANICAL ENGINEERING
	Mr. ADWITH KUMAR		
	Mr. VARUN S.		
	Mr. SWAHID		
<b>Guide(s)</b>	Mr. VIRENDRA KUMAR KAMBOLI	<b>Sanctioned Amount (in Rs.)</b>	5,500.00
	Mr. SHARATHCHANDRA PRABHU		

## Instructions:

- The project should be performed based on the objectives of the proposal submitted.
- Any changes in the project title, objectives or students team is liable for rejection of the project and your institution shall return the sanctioned funds to KSCST.
- Please quote your project reference number printed above in all your future correspondences.
- After completing the project, 2 to 3 page write-up (synopsis) needs to be uploaded on to the following Google Forms link <https://forms.gle/6s8hq5XbScsBMv3G9>. The synopsis should include following:
  - Project Reference Number
  - Title of the project
  - Name of the College & Department
  - Name of the students & Guide(s)
  - Keywords
  - Introduction / background (with specific reference to the project, work done earlier, etc) - about 20 lines
  - Objectives (about 10 lines)

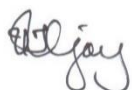
  
PRINCIPAL  
Alva's Institute of Engg. & Technology,  
Mijar. MOODBIDRI - 574 225, D.K

- 8) Methodology ( about 20 lines on materials, methods, details of work carried out, including drawings, diagrams etc)
  - 9) Results and Conclusions (about 20 lines with specific reference to work carried out)
  - 10) Scope for future work (about 20 lines).
- e) In case of incompeted projects, the sanctioned amount shall be returned to KSCST.
  - f) The sanctioned amount will be transferred by NEFT to the bank account provided by the College/Institute.
  - g) The sponsored projects evaluation will be held **third week of May 2024** onwards through Online Mode and the details of the same will be intimated shortly by email / Website
  - h) After completion of the project, soft copy of the project report duly signed by the Principal, the HoD, Guide(s) and student(s) shall be uploaded in the following Google Forms Link <https://forms.gle/Mi446v1U5fdFcMD99>. The report should be prepared in the format prescribed by the university.
  - i) The **Utilization Certificate and Statement of Expenditure duly signed by competent authority** of consolidated sanctioned projects from your institution need to be submitted **20 August 2024** without fail.

Please visit our website for further announcements / information and for any clarifications please email to spp@kscst.org.in

Thanking you and with best regards,

Yours sincerely,



(U T Vijay)

Copy to:

- 1) The HoD  
MECHANICAL ENGINEERING  
ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY, MOODBIDRI
- 2) Mr. VIRENDRA KUMAR KAMBOLI Mr. SHARATHCHANDRA PRABHU  
MECHANICAL ENGINEERING  
ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY, MOODBIDRI
- 3) THE ACCOUNTS OFFICER  
KSCST, BENGALURU



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Mijur. MOODBIDRI - 574 225, D.K

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY,  
BELAGAVI 590018**



**A project report on  
“DESIGN AND FABRICATION OF AUTOMATED  
HUMIDITY CONTROLLED SOLAR PEPPER DRYER”**

**Submitted in partial fulfillment of the requirements for the degree of  
BACHELOR OF ENGINEERING**

**in  
MECHANICAL ENGINEERING**

**By**

<b>ADWITH KUMAR</b>	<b>4AL20ME001</b>
<b>MOHAMMED SWAHID</b>	<b>4AL20ME014</b>
<b>VARUN S</b>	<b>4AL20ME021</b>
<b>VIGNESH</b>	<b>4AL20ME022</b>

**Under the Guidance of  
PROF. VIRENDRA KUMAR KAMBOLI &  
PROF. SHARTHCHANDAR PRABHU**

**Assistant Professor**



**ALVA'S**  
Education Foundation

**Department of Mechanical Engineering  
ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY  
MOODBIDRI-574225, KARNATAKA**

**2023 – 2024**

# ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

Mijar, Moodbidri D.K. -574225 – Karnataka



ALVA'S  
Education Foundation

DEPARTMENT OF MECHANICAL ENGINEERING

## CERTIFICATE


Certified that the project work entitled "DESIGN AND FABRICATION OF AUTOMATED HUMIDITY CONTROLLED SOLAR PEPPER DRYER" is a bonafide work carried out by

ADWITH KUMAR	4AL20ME001
MOHAMMED SWAHID	4AL20ME014
VARUN S	4AL20ME021
VIGNESH	4AL20ME022

are bonafide student of Mechanical Engineering, Alva's Institute of Engineering and Technology in partial fulfillment for the award of **BACHELOR OF ENGINEERING** in **MECHANICAL ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the year 2023–2024. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the Bachelor of Engineering Degree.

  
Prof. Virendra Kumar Kamboli &  
Prof. Sharathchandra Prabhu

Project guide

  
Dr. Satyanarayan  
Head of the Department

H. O. D.  
Dept. Of Mechanical Engineering  
Alva's Institute of Engg. & Technology  
Mijar, MOODBIDRI - 574 225

External Viva

  
Dr. Peter Fernandes  
Principal

Alva's Institute of Engg. & Technology  
Mijar. MOODBIDRI - 574 225, D.K

Name of the Examiners

1. Deepak Kothari
2. Dr. Mohan Kumar

Signature with Date

  
D.R. Kothari  
20/5/24

  
28/5/24

## ABSTRACT

The design and fabrication of an agricultural produce solar dryer for the drying of chili pepper. The solar dryer consists of a solar absorption chamber and a drying chamber. The solar absorption chamber has an opening for the inlet of air, a dark-walled enclosure, and a dark corrugated metal sheet. The drying chamber has tray racks on which two trays are placed, a door for easy access to the trays, their placement, and removal, a transparent glass roof, a circulation fan. An STC3028 humidity and temperature controller is connected to the drying chamber to measure its humidity and temperature. Connected to the controller is a fan that spins to control the humidity when it exceeds the set point (RH of 50%). The system runs on solar power Original Research Article its operation is initiated and halted by an electric switch. Two experiments were carried out with the same mass samples to analyze the performance of the solar dryer as compared to open sun drying. The drying rate, drying time, and efficiency of drying in the solar dryer and the open sun were compared and the results showed a higher drying rate of 11.73g/h on average and a shorter drying time of 27 hours for drying in the solar dryer for each experiment. Drying the chili pepper in the sun took 36 hours for each experiment and it happened at a rate of 8.83g/h and 8.78g/h, respectively. The average efficiency of the dryer is 32.34%.