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# VNC - 2020 TASU

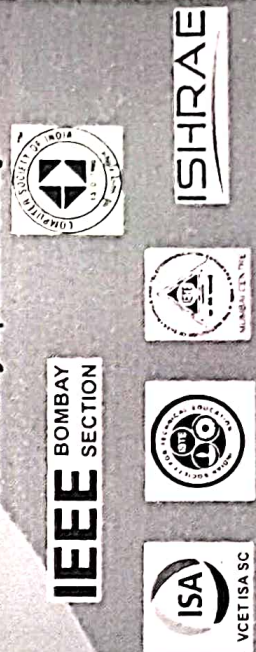
**VIDYAVARDHINI'S  
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SOCIAL UPLIFTMENT  
VNC - 2020 TASU  
4<sup>TH</sup> APRIL, 2020**



**Organized by:**  
**Vidyardhini's College of  
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### About us:

Vidyavardhini means a Body committed to enhancement of Knowledge. Vidyavardhini was established as a registered society in 1970 by late Padmeshri H. G. alias Bhausaheb Vartak for the noble cause of education in rural areas.

Vidyavardhini's College of Engineering and Technology, Vasai is located on the sprawling campus of Vidyavardhini, spread over an area of 12.27 acres. It is a short, two minutes walk from Vasai Road (W) Railway Station. The college is also accessible by road from Mumbai.

Vidyavardhini Society received approval from AICTE to start the new college of Engineering & Technology with effect from July, 1994. The college is affiliated to the University of Mumbai for the four year degree program leading to the degree of Bachelor of Engineering in six branches.

### Objective of VNC 2020 TASU

Technology has always been potential tool for simplifying the way we do things. Present time demands directing the technological advancements towards addressing societal challenges such as improving health care, education environment, sanitation, agriculture, smart city, etc., VNC 2020 TASU aims to provide an opportunity to researchers, academicians, Industrialist and students to interact and share their ideologies and contributions made for social upliftment with the aid of technological advancements.

### Call for paper

We welcome submission in following area

1. Sustainable Computing
  2. High Performance Computing
  3. High Speed Networking and Information Security
  4. Software Engineering and Emerging Technologies
  5. Mathematical, Experimental, Computational and AI, IoT Techniques in Mechanical Engg.
  6. Industrial Engg., ERP, MRP, SCM
  7. Renewable Energy Technologies
  8. Pollution control and Waste Management
  9. Advances in Structural engineering
  10. Present geotechnical practices
  11. Present practices in construction management
  12. Recent developments in Instrumentation, control and automation
  13. Embedded Systems, IoT and VLSI Design
  14. Optical and Wireless Communication for NGN
  15. Antenna and Microwave Devices
- Any other relevant topics

### Publication Information

Proceedings of VNC - 2020 TASU will be published with ISBN number

1. Selected Papers will be published in International Journal of Information Technology, Published by Springer Nature, ISSN: 2511-2104 (Print Version), ISSN: 2511-2112 (Electronic Version)

2. All papers will be published in IJERT, ISSN: 2278-0181

### Important Dates:

- Submission of full length paper  
15<sup>th</sup> Feb 2020
- Paper Acceptance Notification  
22<sup>nd</sup> Feb 2020
- Submission of Final Version of Paper  
29<sup>th</sup> Feb 2020
- Registration Deadline  
5<sup>th</sup> March 2020
- PPT Submission  
20<sup>th</sup> March 2020
- Conference  
4<sup>th</sup> April 2020

### Registration Fee Details:

Category of Delegates / Authors	Indian Authors & Delegates (in INR)
Full Time Students (UG)	1,500.00
Teachers/ Research Scholars/ PG students	2,500.00
Industry	3,500.00

### Paper Submission:

Paper submission should be made strictly via Easy Chair the submission link for VNC 2020 "TASU":

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**\*Best paper award  
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# Design and manufacturing of Dye Sensitized Solar Cell assembly machine.

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**Abstract**—There has been steady accretion of power of nonconventional sources of energy one of the viable means discovered is dye sensitized solar cells. The replacement complying cost, flexibility and profound production rate has led to its acknowledgment. In this work, a prototype of DSSC manufacturing system is presented. With the utilization of motor-driven conveyor belts, linear actuators, dispensing system, heating plate, blowers competent DSSC cell is assembled. The accuracy of the automated assembled cell is superior to the manual cell.

**Keywords**— nonconventional source of energy, Dye sensitized solar cell.

## I. INTRODUCTION

Due to Industrial revolution and rapid growth of technology, the dependence on fossil fuels as source of energy is quite unreliable as they are depleting at exponential rates and contribute significantly to global warming. As a solution to energy crises, we have turned towards Photovoltaic Solar Cells due to abundance of solar energy. Though they have proven to be sustainable and profitable, they are quite expensive. An inexpensive alternative for fossil fuels turns out to be Dye Sensitized Solar Cell using natural dyes. DSSCs have gained popularity since last two decades due to lighter weight and low cost. They have evolved a lot by experimenting with different natural dyes, electrolyte, etc. to achieve better efficiency and stability. Manual fabrication of DSSCs is an exacting process. Every step has to be carried out with an accuracy which is quite unachievable if done manually. So by studying and analyzing different fabrication process, automation of each step can be done by involving technology which eliminates human interference and carries out each step with a certain accuracy. Automation of fabrication of DSSCs can result into increased efficiency and stability. Also, mass producing these efficient, low cost DSSCs can help to meet the energy demands and provide the world a better and sustainable source of energy.

### A. Construction of DSSC.

DSSC consists of a transparent conducting glass electrode with a porous layer TiO<sub>2</sub> coated with a dye that serves as light sensitizer, an electrolyte layer, and a counter electrode, typically coated with graphite. DSSC is third generation solar cell based on a semiconductor formed between a photo sensitized anode and an electrolyte. In the assembly of the DSSC, dyes play an important role in the harvesting of the solar energy, therefore the cell performance is mainly dependent on the type of dyes used as sensitizer.

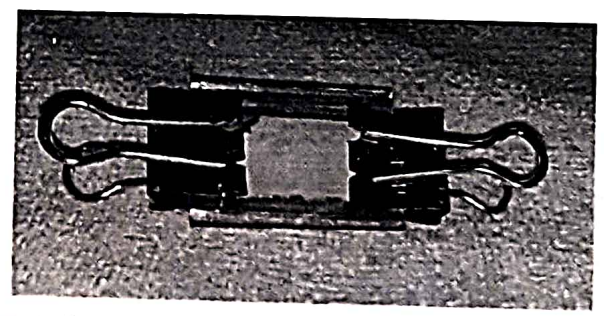


Fig. 1. Manually made DSSC solar cell(Chaudhari et al,2021)

### B. Fabrication of DSSC

Materials- ITO glass, TiO<sub>2</sub> paste, Ethanol, Dye (Eosin Y), Pure iodine, Potassium Iodide, Ethylene glycol, Scotch tape, Hot plate and Binder clips.

1. The conductive side of ITO glass was covered with scotch tape leaving out a squared shaped gap for application of TiO<sub>2</sub> paste.

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VNC - 2020 TASU  
27<sup>th</sup> June, 2020

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# Certificate of Participation

This certificate is presented to  
Dr. Ashish Jagannath Chaudhari  
of Vidyavardhini's College of Engineering and Technology

for presenting paper titled  
**Design and manufacturing of Dye Sensitized Solar Cell assembly machine[NTASU1031]**  
in the Vidyavardhini's National conference 2020 "Technical Advancements for  
Social upliftments" organised by Vidyavardhini's College of Engineering and  
Technology, Vasai held on 27<sup>th</sup> June, 2020

Dr. Vikas Gupta  
Dean Academics  
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Dr. Harish Vankudre  
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