

Start-up Support for Low-Carbon Technologies

Anurag University provides a comprehensive and structured support system for nurturing innovation and developing start-ups among students, faculty, staff, and alumni. The University aims to build a strong entrepreneurial ecosystem through the Anurag University Innovation Centre (AUIIC) coordinates all innovation-related activities, offering pre-incubation and incubation facilities.

The University provides start-ups access to fully equipped workspaces, prototyping facilities, mentorship support, and business development assistance. Students and faculty are encouraged to convert innovative ideas into viable business models through guidance in technology development, design thinking, financial planning, marketing, and legal matters. Start-up teams are permitted to use university facilities, seek flexible academic options, and even replace academic projects with entrepreneurial work. Students can also earn credits and register their company using the university address, with approval.

To support early-stage ventures, the University has an Innovation Fund and encourages start-ups to raise external funding through government schemes, CSR funds, angel investors, venture capitalists, and alumni networks. AU also facilitates IPR licensing, equity sharing arrangements, and technology commercialisation to help entrepreneurs move from ideation to market readiness. Networking events, ideation competitions, hackathons, workshops, and short-term courses strengthen the innovation pipeline. Faculty and staff are incentivised to participate in entrepreneurial activities, and performance evaluation mechanisms recognise contributions to innovation and start-up development.

Through collaborations with industry, national institutions, international partners, and research organizations, the University provides ample exposure and opportunities for start-ups to grow. Regular impact assessments measure progress through parameters such as number of start-ups created, IPR filings, funding access, and utilisation of incubation facilities. Overall, Anurag University offers extensive institutional, academic, financial, infrastructural, and mentoring support to foster a vibrant start-up ecosystem.

In 2024, support was offered to publishing patents for the following two low-carbon technologies. Support is being offered to get the patent granted.

Low-Carbon / Green Technology–Related Patents

1. Solar Water Pumping System for Sustainable Water Management

- **Patent Application No.:** 202441074110
- **Title:** *Solar water pumping system for sustainable water management*
- **Inventors / Contributors:**

- Mr. K. Srinivasa Rao
- Dr. T. Anil Kumar
- Mr. Gugulothu Srikanth
- Mr. Jatavath Nagaraju
- Ms. Karupothula Anusha
- **Assignee:** Anurag University
- **Relevance:**
 - Uses **solar renewable energy**
 - Contributes to **low-carbon rural/agricultural infrastructure**
 - Reduces dependency on fossil-fuel-driven pumps

2. Graphene-Based Carbon Nanotube Composite for Ultra-Flexible High-Performance Displays

- **Patent Application No.:** 202441023969
- **Title:** *Graphene-based carbon nanotube composite for ultra-flexible high-performance displays*
- **Inventors / Contributors:**
 - Mr. E. Sadanandam
 - Dr. CH S. Naga Prasad
 - Dr. Kavuluri Pushpalatha
 - Capt. Dr. Veeraiah Adamilli
 - Dr. D. Lakshmi
- **Assignee:** Anurag University
- **Relevance:**
 - Not a low-carbon technology by application, but includes **carbon-based advanced materials** with potential for energy-efficient devices.

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :01/10/2024

(21) Application No.202441074110 A

(43) Publication Date : 04/10/2024

(54) Title of the invention : SOLAR WATER PUMPING SYSTEM FOR SUSTAINABLE WATER SUPPLY

		(71)Name of Applicant : 1)ANURAG UNIVERSITY Address of Applicant :VENKATAPUR (V), GHATKESAR (M), MEDCHAL MALKAJGIRI DT. HYDERABAD TELANGANA 500088 Hyderabad -----
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		16)ETTABOINA PRANAY Address of Applicant :ANURAG UNIVERSITY, VENKATAPUR (V), GHATKESAR (M), MEDCHAL MALKAJGIRI DT. HYDERABAD TELANGANA 500088 Hyderabad -----

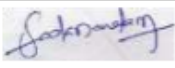
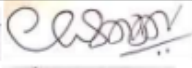
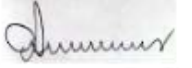
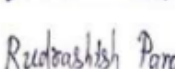
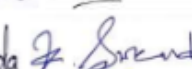
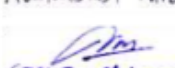
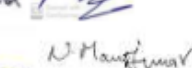
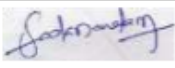
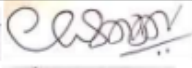
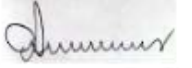
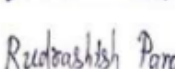
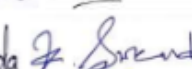
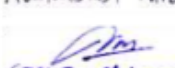
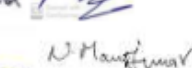
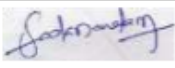
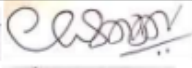
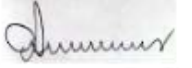
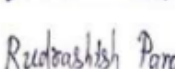
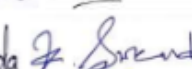
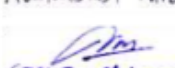
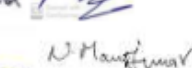
(57) Abstract :
7. ABSTRACT An advanced solar water pumping system (100) is disclosed, which utilizes photovoltaic technology to provide a sustainable and efficient solution for water pumping needs. The system comprises a photovoltaic solar panel array (102) for capturing and converting solar energy into electrical power. This energy powers a submersible direct current (DC) motor (104) for lifting water from submerged sources and an open well alternating current (AC) motor (106) for additional water pumping operations. The operation of the AC motor is managed by a variable frequency drive (VFD) (108), which adjusts motor speed based on available solar energy. A solar charge controller (110) regulates the charging and discharging of a deep-cycle battery (112) to ensure energy storage and system reliability. Electrical relays (114) manage circuit control, while Internet of Things (IoT) switches enable remote monitoring and control. A GPS tracking module provides real-time location data and geofencing capabilities. The control unit automates the system's operation based on real-time energy availability and water demand. The system suitable for various applications including agricultural irrigation, garden and park irrigation, household water supply, and emergency water supply. The figure associated with the abstract is Fig. 2.

No. of Pages : 22 No. of Claims : 10

FORM 1 THE PATENTS ACT 1970 (39 of 1970) and THE PATENTS RULES, 2003 APPLICATION FOR GRANT OF PATENT (See section 7, 54 and 135 and sub-rule (1) of rule 20)				(FOR OFFICE USE ONLY)	
		Application No.			
		Filing date:			
		Amount of Fee paid:			
		CBR No:			
		Signature:			
1. APPLICANT'S REFERENCE / IDENTIFICATION NO. (AS ALLOTTED BY OFFICE)					
2. TYPE OF APPLICATION [Please tick (✓) at the appropriate category]					
Ordinary (✓)		Convention ()		PCT-NP ()	
Divisional ()	Patent of Addition ()	Divisional ()	Patent of Addition ()	Divisional ()	Patent of Addition ()
3A. APPLICANT(S)					
Name in Full		Nationality	Country of Residence	Address of the Applicant	
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3. Dr. Kavuluri Pushpalatha		Indian	India	Assistant Professor, Department of Chemistry, Krishna University, Machilipatnam, Andhra Pradesh, India, Pincode: 521004	

4. Capt. Dr. Veeraiah Adamilli	Indian	India	Associate Professor, Department of Physics, D.N.R. College (Autonomous), Bhimavaram, West Godavari District, Andhra Pradesh, India, Pincode: 534202
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6. Dr. P Vasanth Kumar	Indian	India	Assistant Professor (Guest Faculty), Department of Mechanical Engineering, Andhra University College of Engineering for Women, Visakhapatnam, Andhra Pradesh, Pincode:530002
7. Dr. Rudrashish Panda	Indian	India	Associate Professor in Physics, Department of Basic Sciences and Humanities, Gandhi Institute of Excellent Technocrats, Ghangapatna, Bhubaneswar, Odisha, India, Pincode: 752054
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9. Dr. Suresh Kumar	Indian	India	Assistant Professor, Department of Chemistry, Dr P D B H Government (P.G.) College, Kotdwar, (Pauri Garhwal), Uttarakhand, India, Pincode: 246149
10. Dr. Nellore Manoj Kumar	Indian	India	Independent Researcher, Founder & CEO, Infinite-Research Organization, B.O, 15-225, Gollapalem, Venkatagiri, Tirupati District, Andhra Pradesh, India, Pincode: 524132

3B. CATEGORY OF APPLICANT [Please tick (✓) at the appropriate category]					
Natural Person (✓)		Other than Natural Person			
		Small Entity ()	Startup ()	Others ()	
4. INVENTOR(S) [Please tick (✓) at the appropriate category]					
Are all the inventor(s) same as the applicant(s) named above?		Yes (✓)		No ()	
If "No", furnish the details of the inventor(s)					
Name in Full		Nationality	Country of Residence	Address of the Inventor	
Same as Applicant					
5. TITLE OF THE INVENTION					
"Graphene-Based Carbon Nanotube Composite for Ultra-Flexible High-Performance Displays"					
6. AUTHORISED REGISTERED PATENT AGENT(S)			IN/PA No.		
			Name		
			Mobile No.		
7. ADDRESS FOR SERVICE OF APPLICANT IN INDIA			Name		Mr. E. Sadanandam
			Postal Address		Assistant Professor, Department of Mechanical Engineering, Anurag University, Venkatapur, Ghatkesar, Hyderabad, Telangana, India, Pincode: 500098
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8. IN CASE OF APPLICATION CLAIMING PRIORITY OF APPLICATION FILED IN-CONVENTION COUNTRY, PARTICULARS OF CONVENTION APPLICATION					
Country	Application Number	Filing date	Name of the applicant	Title of the invention	IPC (as classified in the convention country)
9. IN CASE OF PCT NATIONAL PHASE APPLICATION, PARTICULARS OF INTERNATIONAL APPLICATION FILED UNDER PATENT CO-OPERATION TREATY (PCT)					
International application number			International filing date		
10. IN CASE OF DIVISIONAL APPLICATION FILED UNDER SECTION 16, PARTICULARS OF					

ORIGINAL (FIRST) APPLICATION																							
Original (first) application No.	Date of filing of original (first) application																						
11. IN CASE OF PATENT OF ADDITION FILED UNDER SECTION 54, PARTICULARS OF MAIN APPLICATION OR PATENT																							
Main application/patent No.	Date of filing of main application																						
12. DECLARATIONS																							
(i) Declaration by the inventor(s) (In case the applicant is an assignee: the inventor(s) may sign herein below or the applicant may upload the assignment or enclose the assignment with this application for patent or send the assignment by post/electronic transmission duly authenticated within the prescribed period). I/We, the above named inventor(s) is/are the true & first inventor(s) for this Invention and declare that the applicant(s) herein is/are my/our assignee or legal representative. (a) Date 25/03/2024 <table border="1"> <thead> <tr> <th>(b) Name</th> <th>(c) Signature</th> </tr> </thead> <tbody> <tr> <td>1. Mr. E. Sadanandam</td> <td></td> </tr> <tr> <td>2. Dr. CH S Naga Prasad</td> <td></td> </tr> <tr> <td>3. Dr. Kavuluri Pushpalatha</td> <td></td> </tr> <tr> <td>4. Capt. Dr. Veeraiah Adamilli</td> <td></td> </tr> <tr> <td>5. Dr. D. Lakshmi</td> <td></td> </tr> <tr> <td>6. Dr. P Vasanth Kumar</td> <td></td> </tr> <tr> <td>7. Dr. Rudrashish Panda</td> <td></td> </tr> <tr> <td>8. Mr. Surendra Kanikella</td> <td></td> </tr> <tr> <td>9. Dr. Suresh Kumar</td> <td></td> </tr> <tr> <td>10. Dr. Nellore Manoj Kumar</td> <td></td> </tr> </tbody> </table>		(b) Name	(c) Signature	1. Mr. E. Sadanandam		2. Dr. CH S Naga Prasad		3. Dr. Kavuluri Pushpalatha		4. Capt. Dr. Veeraiah Adamilli		5. Dr. D. Lakshmi		6. Dr. P Vasanth Kumar		7. Dr. Rudrashish Panda		8. Mr. Surendra Kanikella		9. Dr. Suresh Kumar		10. Dr. Nellore Manoj Kumar	
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(ii) Declaration by the applicant(s) in the convention country (In case the applicant in India is different than the applicant in the convention country: the applicant in the convention country may sign herein below or applicant in India may upload the assignment from the applicant in the convention country or enclose the said assignment with this application for patent or send the assignment by post/electronic transmission duly authenticated within the prescribed period) I/We, the applicant(s) in the convention country declare that the applicant(s) herein is/are my/our assignee or legal representative. (a) Date (b) Signature(s) (c) Name(s) of the signatory																							

(iii) Declaration by the applicant(s)

I/We the applicant(s) hereby declare(s) that: -

- ☐ ~~I am/ We are in possession of the above-mentioned invention.~~
- ☐ ~~The provisional/complete specification relating to the invention is filed with this application.~~
- ☐ ~~The invention as disclosed in the specification uses the biological material from India and the necessary permission from the competent authority shall be submitted by me/us before the grant of patent to me/us.~~
- ☐ ~~There is no lawful ground of objection(s) to the grant of the Patent to me/us.~~
- ☐ ~~I am/we are the true & first inventor(s).~~
- ☐ ~~I am/we are the assignee or legal representative of true & first inventor(s).~~
- ☐ ~~The application or each of the applications, particulars of which are given in Paragraph 8, was the first application in convention country/countries in respect of my/our invention(s).~~
- ☐ ~~I/We claim the priority from the above mentioned application(s) filed in convention country/countries and state that no application for protection in respect of the invention had been made in a convention country before that date by me/us or by any person from which I/We derive the title.~~
- ☐ ~~My/our application in India is based on international application under Patent Cooperation Treaty (PCT) as mentioned in Paragraph 9.~~
- ☐ ~~The application is divided out of my /our application particulars of which is given in Paragraph 10 and pray that this application may be treated as deemed to have been filed on DD/MM/YYYY under section 16 of the Act.~~
- ☐ ~~The said invention is an improvement in or modification of the invention particulars of which are given in Paragraph 11.~~

13. FOLLOWING ARE THE ATTACHMENTS WITH THE APPLICATION

(a) Form 2

Item	Details	Fee	Remarks
Complete/ Provisional specification) #	No. of pages: 16		
No. of Claim(s)	No. of claims: 10 No. of pages: 02		
Abstract	No. of pages: 01		
No. of Drawing(s)	No. of drawings: 00 No. of pages: 00		

In case of a complete specification, if the applicant desires to adopt the drawings filed with his provisional specification as the drawings or part of the drawings for the complete specification under rule 13(4), the number of such pages filed with the provisional specification are required to be mentioned here.

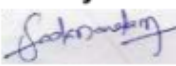
- (b) Complete specification (in conformation with the international application)/as amended before the International Preliminary Examination Authority (IPEA), as applicable (2 copies).
- (c) Sequence listing in electronic form
- (d) Drawings (in conformation with the international application)/as amended before the International Preliminary Examination Authority (IPEA), as applicable (2 copies).
- (e) Priority document(s) or a request to retrieve the priority document(s) from DAS (Digital Access Service) if the applicant had already requested the office of first filing to make the priority document(s) available to DAS.
- (f) Translation of priority document/Specification/International Search Report/International Preliminary Report on Patentability.
- (g) Statement and Undertaking on Form 3
- (h) Declaration of Inventorship on Form 5
- (i) Power of Authority

(j) **Total fee ₹.....in Cash/ Banker's Cheque /Bank Draft bearing No.....**

Date on Bank.

I/We hereby declare that to the best of my/our knowledge, information and belief the fact and matters stated herein are correct and I/We request that a patent may be granted to me/us for the said invention.

Dated this 25th day of March 2024

Signature: 

Name: Mr. E. Sadanandam et. al.

To,

The Controller of Patents

The Patent Office, at Chennai

Note: -

- * Repeat boxes in case of more than one entry.
- * To be signed by the applicant(s) or by authorized registered patent agent otherwise where mentioned.
- * Tick (/)cross (x) whichever is applicable/not applicable in declaration in paragraph-12.
- * Name of the inventor and applicant should be given in full, family name in the beginning.
- * Strike out the portion which is/are not applicable.
- * For fee: See First Schedule";