Newspaper Clips
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Made in IIT solar plant powers thousands of rural homes

http://economictimes.indiatimes.com/industry/energy/power/made-in-iit-solar-plant-powers-thousands-of-rural-homes/articleshow/58848114.cms

NEW DELHI: A solar plant of the size and cost of a centre table on your rooftop can insure your home against power cuts and halve your electricity bill. IIT Madras has invented such as solar rooftop installation smaller and cheaper than present installations.

At a cost of Rs 20,000, the rooftop plant and storage system can run couple of tubelights, fans, charging points and a TV. A higher model can run all essential load minus washing machine and air conditioners of a middle class and reduce dependence on normal electricity supply.

The rooftop plant has been installed under CSR and government sponsorship in 15,000 rural homes and was successful in facing a three day power cut during Chennai floods in December 2015.

An official in the Solar Energy Corp of India said to install a rooftop of the present technology, a middleclass family will require 1kWh solar rooftop and storage costing about Rs 1.2 lakh and a space of about 100 sq ft.

Rural Electrification Corporation (REC) has electrified 4,000 offgrid homes in Jodhpur and Jaisalmer districts of Rajasthan and 7,500 homes in Assam. Another 12,000 more homes are being taken up in hills of Assam, while some gridconnected installations have been undertaken in Odisha, Karnataka, Tamil Nadu, Telangana and Andhra Pradesh.

On Thursday, the solar power system was recognised by The Institute of Electrical and Electronics Engineers (IEEE), New York, as 'Technology of the year 2017 in the service of humanity'.

The solar inverterless DC system is cost and energy efficient as unlike other solar power systems, it does not convert direct current (DC) produced by a solar installation into alternate current (AC). The system comes with a full DC wiring. Each time a unit of AC is converted into DC, there is a 15 per cent loss of energy. A DC system is 2.5 times more efficient than the AC system and hence requires lesser space, said IITM professor Ashok Jhunjhunwala.

While a 125W rooftop solar, a 0.5kWh lead acid DC battery, and few DC electrical appliances will cost approximately Rs 20,000, a basic 500W solar power and 3 kWh lead acid storage will cost a bit over Rs 40,000 without taxes, he said. A 125W solar installation will require 10sqft space, while 500W requires 50 sqft of space, said Venkat Rajaraman, chief executive officer of Cygni Energy that is commercialising the technology.

Jhunjhunwala said a solar DC microgrid could help break the logjam that the domestic power supply currently faces in India. Data with REC shows that about four crore households are yet to be electrified in India.

IIT-Bombay hikes fees, divides mess charges among all students

http://www.hindustantimes.com/mumbai-news/iit-bombay-hikes-fees-divides-mess-charges-among-all-students/story-RSqShiIAsnTNEW7Edh5prL.html

Mumbai city news: Barely a year after it introduced a two-fold hike in its tuition fees, the institute has decided to increase the fees charged under various heads, including a 300 % hike in hostel rent

Studying at the Indian Institute of Technology-Bombay (IIT-B) is set to become costlier.

Barely a year after it introduced a two-fold hike in its tuition fees,the institute has decided to increase the fees charged under various heads, including a 300 % hike in hostel rent, 167 % hike in gymkhana fees, 100 % hike in examination, registration and medical fees, and between 30% and 50% increase in other charges. However, the concessional tuition fees charged from post-graduate students has been reduced by 50%.

Last year, the central govermment had increased the annual tuition fees from Rs 90,000 to Rs 2 lakh. However, the hike came with a fee waiver for specially abled students and those belonging to other reserved categories.

According to an estimate, students staying on the campus will now have to pay an additional Rs 22,000- Rs27,000 per annum towards hostel, mess, medical, gymkhana and other charges. The annual concessional tuition fees of Rs10,000 has been reduced to Rs 5,000. The academic fee is Rs 50,000 a year, but students who don't have a sponsor are given a concession of Rs40,000.

IIT-B has decided to charge all the hostelites at Rs 1,500 every semester as mess establishment charges. Earlier, only 2,000 students, who used the mess, were charged Rs 6,000 for this purpose. The mess services for remaining 7,000 students have been outsourced to contractors.

"It was unfair to charge only some of the students for the mess, so we have decided to distribute the cost among all the students," said Soumyo Mukherjee, dean of students' affairs at IIT-B.

The institute has justified the hike as standard adjustments for inflation and charges for new services. "The hostel rent, which has been increased from Rs 500 to Rs 2,000, was last increased in 1997. Similarly, other charges were also due for a hike for long. The gymkhana fee has been increased to recover the cost of the new swimming pool and other indoor sports facilities. The insurance cover has been increased from Rs 1 lakh to Rs 2 lakh," said Mukherjee.

The students feel that the authorities should have discussed it with students before deciding on the hike.

IIT Bombay hikes charges, Delhi to follow suit soon
http://www.dnaindia.com/education/report-iit-bombay-hikes-charges-delhi-to-follow-suit-soon-2451301

The Indian Institute of Technology, Bombay (IIT-B), has hiked its fees under several heads including hostel rent, gymkhana charges, medical expenses, and exam charges for the academic year 2017-18.

The new fees were declared recently on the institute's official website and students have to pay the sum by July 11, 2017, with delayed payments permissible till July 19, against a fine of Rs 100 per day. The hikes ranging from 100-300 per cent per head will be implemented July onward. While gymkhana expenses for the undergraduates have gone up from Rs 750 to Rs 2000, the hostel rent has shot up from Rs 500 to Rs 2,000. Registration and examination fees have been raised from Rs 500 to Rs 1,000.

The overall hike for undergraduate students will be up to Rs 6,500 per semester while for the post graduate and M Tech students it will be Rs 2,250 per semester. Tuition fees, however, remain the same for the undergraduate courses, as the IIT Council fixes this amount, which is uniformly implemented across all IITs.

Scheduled Castes/ Scheduled Tribes/ Persons with Disability students will see a more than 24 per cent hike since they are exempt from paying tuition fees.

Several student groups protested the hike as they were not consulted before such a major decision. "How can they increase the charges of essentials suddenly? There was no consultation with students at all," said a PhD scholar from the Institute.

Soumyo Mukherjee, Dean of Student Affairs, said that the hike was to offset inflation. "Rates of food have gone up and electricity has become costlier too. We have not hiked the hostel charges since 1997. The Institute has considered this carefully and kept the hike as minimal as possible," he said.

DNA has learnt that IIT Delhi is also likely to follow suit, although authorities are yet to decide on exact amount. Also, the current batch in IIT Delhi won't be affected, only new entrants will have to bear the brunt.

Confirming the development, Director IIT Delhi Prof. V Ramagopal Rao told DNA, "We are planning to hike the hostel and mess fee in the coming days. We haven't decided on how much the increase will be. Our fees are already higher than IIT Bombay, so we will keep students' interests in mind."

In a meeting of the IIT Council with former HRD Minister Smriti Irani last year, it was decided not to increase tuition fees in the coming year. While the council takes a call on increasing the tuition fee, local expenses like hostel and mess are decided by individual IITs.

IIT Ropar to increase its industrial associates to 25
http://timesofindia.indiatimes.com/city/chandigarh/iit-ropar-to-increase-its-industrial-associates-to-25/articleshow/58847641.cms

CHANDIGARH: The Indian Institute of Technology (IIT), Ropar organised an industry meet on Thursday and decided to embark on a mission to increase the strength of its industrial associates from 19 to 25 within this year. It also plans to to explore new projects with prospective faculty and industry partners.

The institute also declared its vision for the year 2020 which focuses on having 50 active industries as part of the industrial associates of IIT Ropar with at least 15 sound projects, promoting a minimum of 30 invited lectures per year and at least 30 visits of the faculty to various industries every year by 2020.

The meeting was chaired by Sarit Kumar Das, director, IIT Ropar and was attended by industry leaders and representatives. The key objectives of the event were to bring the industry and academia on the same platform to discuss issues related to industrial expectations from the institute, solve industrial problems through projects, boost local industry in the region and explore the possibility of setting up industry sponsored labs in the institute.

The meeting also touched upon the importance of 'Make in India' and how industry and academia can collaborate and contribute to this policy. About 25 members from other industries and 19 from Industrial Associates of IIT Ropar attended the event.

Das pointed out, "The current stage of industry-academia linkages in India is still quite nascent. We have to ensure a more sustaining and long term structural plan for continuous development that would be mutually beneficial for the industrial sector and academic research."

Harpreet Singh, Associate Dean (industrial relations, international & alumni affairs) said, "This meet has discussed the predominant challenges collaboration of industry and academia is facing and structuring a clear road map for the involvement of relevant stakeholders."

Government will add supernumerary seats in IITs to raise intake of girls
http://timesofindia.indiatimes.com/city/ahmedabad/govt-will-add-supernumerary-seats-in-iits-to-raise-intake-of-girls/articleshow/58846925.cms

GANDHINAGAR: Union HRD minister Prakash Javadekar, on Thursday, said the government has plans to create supernumerary seats for girls in IITs across the country to increase their presence in the premier institutes.

Only 8% of IIT students are girls, said Javadekar, adding, "We want to raise the number of girls in IITs to 20% of the intake, and for this, the government will have supernumerary seats in IITs."

While addressing the session on 'Africa-India Co-operation on Skill Development & Education - Focus on People-to-People Exchange', at Mahatma Mandir, Gandhinagar, Javadekar said that scholarships for African students will be increased from the current 24,000 to 50,000 in the next five years.

Speaking on Africa-India cooperation, Javadekar said that India cherishes its partnership with African countries in various sectors, as also in skill development. India and Africa has common demographic features and large youth populations. If skills and employment were provided to them, it will provide a demographic dividend, said the Union HRD minister. India and Africa should learn from each other's successes, as well as mistakes, he added.

The Union HRD minister said that 6.5 million books and journals have been uploaded to the National Digital Library of India. Such initiatives will further expand India-Africa partnership and make it real and permanent, Javadekar said.

Union minister of state for finance, Santosh Kumar Gangwar, also stressed on realizing the benefits of demographic dividends, and about India and Africa having the potential to emerge as the human resource capitals of the world.

May 25
IITs' attempt to woo foreign students flops, only 222 apply
http://timesofindia.indiatimes.com/city/kolkata/iit-attempt-to-attract-foreign-students-flops-only-222-apply/articleshow/58769778.cms

KOLKATA: The IITs' attempt to don a more global look has not taken off the way the country's premier technology institutes would have liked it to.

In a first, the IIT-JEE (Advanced) is being conducted in five international centres apart from Dubai, which was the only off-shore venue till last year. Even though 1,100 seats have been earmarked for overseas candidates, just 222 from Bangladesh, Sri Lanka, Nepal, Singapore, Ethiopia and Dubai will take the entrance exam on Sunday.

The move follows a decision to reserve 10% supernumerary seats for foreign students. At present, the 23 IITs, including ISM-Dhanbad, have around 11,000 seats. The foreign candidates are not required to appear in JEE (Main), the qualifying test for candidates from the country. The cut-off marks to bag a seat in the IITs though will be the same for both categories.

According to IIT-Bombay director Devang Khakhar, the institutes need to penetrate better among schools abroad to draw more candidates. "We haven't done enough publicity and students also need to get better prepared to appear in the IIT-JEE (Advanced). This was our first attempt to reach out to the foreign shores. That we have been able to garner attention and hold the exam is an achievement in itself. This is just the beginning," Khakhar said .

According to sources, only one team from the IITs had visited all the six countries in an attempt to attract candidates. It was done just a few months ago, barely allowing enough time for candidates to decide on taking the exam.

"More attention needs to be devoted to organizing the exam overseas. Since these candidates are not required to appear in JEE (Main), the registration process could have started earlier. Even a year-round registration system can be put in place," said an IIT official. The official argued that the system of each IIT taking turns to conduct the exam in one of the foreign locations every year may not be a good option. "Each IIT should be responsible for conducting the exam in one particular off-shore centre every year. This will it to formulate policies to increase the number of takers," he said.

In the first ever exam to be held at the six foreign locales, 153 candidates have registered from Dubai followed by 33 students from Kathmandu, 13 students from Dhaka, 12 candidates from Singapore, 9 students from Colombo and only 2 candidates from Addis Ababa.

A senior IIT official, however, applauded the attempt to hold the exam overseas. "Graduate Aptitude Test in Engineering (GATE) is taken by senior students holding a graduation degree or some with work experience. Much like the IIT -JEE (advanced) exam, GATE, too was held in the six countries for the first time. Yet, there were not too many takers for the exam. Only 254 applicants had registered out of which 220 took the test. Our exam has got 222 registered candidates. With fresh students appearing in the IIT-JEE (Advanced) we have not fared too badly," he said. "There was clear instruction from the HRD ministry that even if there was one candidate from any country we would have to hold the test there," he added.

This year, 20,000 more candidates have been eligible to write the exam after clearing JEE (Main), thus taking the total number to 2,20,000 in IIT-JEE (Advanced).

IIT Ropar ranks among the top new IITs in India
http://www.thehansindia.com/posts/index/Young-Hans/2017-05-24/IIT-Ropar-ranks-among-the-top-new-IITs-in-India/302155

IIT Ropar ranked third among the new IITs in overall and Fifth in engineering category

"The Indian Institute of Technology Ropar, had a successful academic year. The institute has witnessed various achievements and has actively made collaboration with national and international institutes to make a mark in the field of research, innovation and academics in the upcoming future", says S K Das, Director, IIT-Ropar while talking about the achievement the IIT has achieved.

"IIT Ropar is heading towards its permanent campus in August 2017 with modern facilities aiming towards excellence. We are proud to have robust teaching environment along with cutting-edge research facility and constant revision of courses and curriculum. The future leaders are nurtured in IIT Ropar on a beautiful educational landscape with an endeavour to bring a culture of innovation and sensitivity to social responsibilities," he added.

The institute currently offers a Bachelor of Technology (B. Tech.) programme in Computer Science and Engineering, Electrical Engineering, Mechanical Engineering and civil engineering. Some courses like Civil engineering has already been introduced this year.

Chemical and Biotechnology engineering will be soon introduced with the opening of the new campus. IIT Ropar has witnessed most successful placement season in the past four years with over 82% students placed successfully. A total of 95 students registered for placements this year, 42 companies came to campus for recruitments and there was 1 international placement.

This year Public-Sector Undertaking companies (PSU) like Indian Space Research Organisation (ISRO) and Bharat Dynamics Limited also participated in the recruitment process.

Fill posts, teachers who are free should guide research: Prakash Javadekar to JNU

http://indianexpress.com/article/education/fill-posts-teachers-who-are-free-should-guide-research-prakash-javadekar-to-jnu-4672606/

JNU will admit only 242 research scholars this year, a 75 per cent drop from last year's 970 seats.

UNION HRD Minister Prakash Javadekar has "advised" Jawaharlal Nehru University (JNU) to permit additional MPhil/PhD admissions in departments where the UGC-mandated cap on MPhil/PhD scholars for each teacher has not been fulfilled. Javadekar has suggested that JNU teachers, who are not supervising any research scholars at this moment, should be encouraged to take in students in order to alleviate the effects of 2016 UGC (Minimum Standards and Procedure for Award of MPhil/PhD Degrees) Regulations implemented by the university this year. Speaking to The Indian Express on Wednesday, he said, "I do not micromanage. They (JNU) are independent. A university has to be autonomous.

But when they (JNU V-C) came for a seminar (recently), I advised that they should ensure that if somebody (a teacher without any research scholar) does not want to take students that is his choice. But if he is ready (to guide research scholars) then you should encourage it. We have no intention to reduce intake. In fact, we want more PHDs to come in."

He added, "That apart, there are 300 teacher vacancies in JNU. Teaching posts reserved for Scheduled Castes, Scheduled Tribes and physically challenged are not filled. By December, we hope all of these vacancies will be filled and then the number (of student intake) will be the same or even more than last year." JNU will admit only 242 research scholars this year, a 75 per cent drop from last year's 970 seats.

This is happening on account of the new UGC regulation under which a professor cannot guide more than three MPhil and eight PhD scholars, an associate professor a maximum of two MPhil and six PhD scholars and an assistant professor not more than one MPhil and four PhD scholars. According to JNU sources, the Vice-Chancellor has been advised by the government to not divide the excess student load of one professor among remaining teachers of the same department while calculating fresh admissions.

"There are many departments where one professor is guiding 30 students, but, at the same time, his or her colleagues are either supervising none or haven't fulfilled the UGC cap. The government has suggested to the V-C to allow teachers with no or few scholars to supervise more students. As per the ministry's calculation, if we permit this and fill up the 300 vacant teaching positions, then JNU can admit over 1200 students more by December," said a university source, who did not wish to be identified.

Despite repeated attempts to contact him, JNU V-C Jagadesh Kumar was unavailable for comment.

May 24

Panjab University slips from rank 4 to 9 in India in rankings based on research citations

http://www.hindustantimes.com/education/panjab-university-slips-from-rank-4-to-9-in-india-in-rankings-based-on-research-citations/story-KxIJDAP4ACTGyKg7fkNCCK.html

Leiden University Rankings: PU ranks 9 in the top 10% most cited papers; It tops in research papers published through collaborations

Panjab University (PU), Chandigarh, has slipped from rank 4 to 9 in India in Netherlands-based Leiden University Rankings 2017 in the category of proportion of papers among the top 10% most frequently cited for any institution. IIT Delhi tops the chart, followed by IIT Roorkee and Annamalai University. The Post Graduate Institute of Medical Education and Research (PGIMER) in Chandigarh, has been ranked19 and AIIMS 20 in the list.

Methodology

The rankings, released on May 17, were based on citations of research papers from 2012-2015 in web of science database for 902 institutions around the world.

Fractional counting was used, which gave less weightage to the collaborative publications than non-collaborative ones. The citations were counted until the end of 2016. They were then compiled by the Centre for Science and Technology Studies at Leiden University in the Netherlands. The first edition of rankings came in 2007.

Ranking in 3 categories

In 2017 edition of rankings, PU has 7% of its publications among the 10% of most cited publications while PGIMER has 4.5%. In the 2016 edition of rankings, PU had 7.4% of its publications among the 10% of the most cited publications while PGIMER had 4.4%.

If the proportion of papers among the 1% of most cited publications is calculated, then PU comes at 13th rank with 0.4% of its publications falling under this category while IIT Roorkee tops the chart followed by Banaras Hindu University (BHU). PU was at 13th place in 2016 as well under this category.

In the category of proportion of papers among the 50% of most cited publications, PU comes at the 6th place with 46.1% of its publications and PGIMER is at 19th rank. IIT Delhi, however, bags the top position under this category. Meanwhile, in life sciences, PU tops the list in the country in 2017 edition.

Research papers through collaboration

PU tops in percentage of papers produced in collaboration with others as it comes to 69.1% followed by Jadavpur University (67%) and Delhi University (66%). In 2016 also, PU was on the top with 68.4% of its publications in collaboration.

If the research papers are further classified in international collaboration, then PU is at second place while Aligarh Muslim University tops the chart. In 2016, PU was on the top.

In collaborated papers with industry, PU lags behind and comes at the 14th place in 2017 rankings while Vellore Institute of Technology tops.

PU professor Rajat Sandhir said, "In spite of all odds, we are doing good in research in sciences. It feels great to be a part of top institutes of this country. We need to keep it up."

Without fractional counting

If the fractional counting is not used, then PU tops in the country under the categories of proportion of papers in the top 10% and 50% most cited papers. However, in the top 1% most cited papers, it comes at number 3.

IIT Kanpur-Incubated Start-Up Aims to Better Education in Rural Uttar Pradesh
http://www.indiaprwire.com/pressrelease/education/20170523517150.htm

Under its INVENT program, IIT Kanpur has funded a start-up which has developed an analytical tool to monitor student and teacher performance in rural schools.

Promorph Solutions Pvt. Ltd., a start-up funded by IIT Kanpur's SIDBI Incubation and Innovation Centre (SIIC), is now planning to expand to Uttar Pradesh after tremendous success in Jharkhand, where they had been working with government schools under Disha, a quality education initiative of Giridh District, Jharkhand.

Working in the field of education, Promorph has developed an innovative analytical tool that can help in improving the quality of education in schools, especially the ones in rural areas where the standards are abysmally low. This analytical tool has been developed in two versions - one for government schools and one for higher education institutions. In every district, teachers, headmasters and Cluster Resource Persons (CRP) are equipped with a mobile application which will aid them in marking attendance, assess student's knowledge and monitor learning conditions. At the district level, the web application provides pictorial monitoring and real-time analysis of Key Performance Indicators (KPI).

This tool not only automates school/institute operations, thus leading to lower workload, but it also helps to monitor school performance based on a number of KPIs and then to analyse the data generated. In Giridh, EmpowerU has brought about immense improvement in teacher attendance, Mid Day Meal monitoring, learning outcome assessment, monitoring of infrastructural conditions, performance evaluation and leave management. Between July'16, when EmpowerU was launched in Giridh District, and September'16, average teacher's attendance went up from 68% to above 90% and student attendance improved from 2,081 to 1,04,629. Approximately 70,000 students and 5,000 teachers are daily monitored in this district.

Since access to the internet is poor in rural areas, the EmpowerU app can also send data through an SMS, thus making sure that monitoring is done at all times. Another feature is the GPS tracking that does not allow any teacher to mark their attendance outside the school radius, thus helping increase teacher attendance in schools.

In their data analytics tool for higher education institutes, a number of features such as online admission, library management, online test and human resource management help in running an institute efficiently.

According to the Census report of 2011, Uttar Pradesh's literacy rate is the seventh lowest in the country and according to a 2014 report by ASER Centre, in primary schools in rural Uttar Pradesh, the percentage of enrolled children present in class was 55.1 per cent while that of teachers present was 84.7 per cent. In such a scenario, EmpowerU has the potential to make some real difference.

"The cloud-based service and monitoring platform provided by Promorph Solutions has the potential to change the way education monitoring is done in rural and semi-urban schools. The company can create high impact in the educational administration space, especially in low-income states. The proof-of-concept has already been done and pilot scale deployment has shown outstanding results," said Dr. Sameer Khandekar, Coordinator, SIIC, IIT Kanpur.

Promorph Solutions, incubated in 2015, has been founded by Onkar Dixit, an alumnus of IIT Kanpur. EmpowerU was awarded under the "Innovative Idea for use of Technology and Innovation in Promoting Good Governance", an initiative of Ministry of Human Resource Development, Government of India.

Madhya Pradesh signs MoU with IIT Kharagpur to measure happiness index

http://timesofindia.indiatimes.com/city/bhopal/mp-signs-mou-with-iit-kharagpur-to-measure-happiness-index/articleshow/58814407.cms

BHOPAL: By next year people in Madhya Pradesh will know how happy they are. After setting up a happiness department, state government has signed a memorandum of understanding (MoU) with IIT Kharagpur's Rekhi Centre of Excellence for the Science of Happiness on the development of a Happiness Index for measuring the well-being of the people of the state.

A door-to-door survey will be conducted for the purpose and people will be made to fill up questionnaire. The process will start from January next and by the time of assembly elections in the state 2018, people will get to know how happy they are.

The MoU was signed with MP government's 'Rajya Anandam Sansthan' (Department of Happiness) in presence of chief minister Shivraj Singh Chouhan and IIT-KGP director Prof P P Chakrabarti at Bhopal.

IIT-KGP will develop the index and analyse data collected by the state government to assess the level of happiness and advice how to enhance happiness.

Officials said by December the format of the forms that people will be made to fill for measuring their happiness index and other details will be ready.

The institute will develop online courses on happiness through the evaluation system available at the Centre for Educational Technology of IIT-KGP. The state government has also roped in Indian School of Business, Hyderabad for the purpose.

State's happiness department — the only one of its kind in the country —introduced a calendar, which the chief minister presented to Prime Minister Narendra Modi. Its budget was more than doubled from Rs 2 crore to Rs 4.75 crore this year. The department is in the process of setting up a swanky office in the Board Office complex in Bhopal.

A month ago, a team of MP officials visited Bhutan to understand the happiness model prevalent there. Officials have submitted their report and government may take some tips from it, too.

IISC SCIENTIST BUILDS MIND-CONTROLLED QUADCOPTERS

HTTP://BANGALOREMIRROR.INDIATIMES.COM/BANGALORE/COVER-STORY/IISC-SCIENTIST-BUILDS-MIND-CONTROLLED-QUADCOPTERS/ARTICLESHOW/58814288.CMS

Yoga guru and his team's creation will have wide-ranging applications, from defence to helping the visually impaired

S N Omkar is no stranger to the mysteries of the human mind. Being a yoga teacher and also the chief research scientist of the Department of Aerospace Engineering, IISc, requires that he unravel mysteries, if there are any.

Sitting in the department, Dr Omkar sports a black head-mounted device to demonstrate to Bangalore Mirror the latest offering from his team and him in this direction -- a drone. Look at the drone - a quadcopter to be precise-- as it takes off and floats in the air and it is just like any other.

But a look at Omkar, under whose command the drone is moving up, down, left and right, tells you what is so mind-boggling about this drone. There is no joystick in his hand. It is just the head-mounted device and a laptop that is manoeuvring the drone. There are no gestures or commands, but the drone dances to his tunes.

It is the country's first mind-controlled drone, developed by the IISc's Department of Aerospace Engineering.

The drone operates just based on the thought of its operator, who wears an electroencephalogram (EEG) headset. "The focused thought of the brain or the electrical activity of the brain is captured by a head-mounted EEG device and the signals are wirelessly sent to a laptop. Algorithms residing in the laptop convert these signals into command inputs for the drone (quadcopter) for suitable action," explains Omkar.

The working of the drone is purely driven by thought, he says. When the first mind-controlled drones hit the scene, the doors to the future were thrown open. Other than competitions featuring mind-controlled drones -- the University of Florida conducted the world's first mind controlled drone race in 2016 -- a possibility of robots controlled by the mind became closer to reality.

For India, the department of aerospace engineering's is the first such attempt.

Omkar tells us these types of drones can primarily be used for military operations as the operator can guide the drone into enemy territory and carry out surveillance or any other job done stealthily.

SN Omkar and rest of the IISc team that made the drone happen

Omkar and his team worked on the drone for a year and as of now the team can make it move up and down and hover left and right.

"Once the technology reaches maturity, it can be used for a wide range of applications. The EEG headsets can be of great help to the visually-impaired. Using this technology without the requirement of vision one can accomplish many tasks be it turning switches on or off and even drive a vehicle," he says.

IIT-KGP developing solar-powered 2-wheelers

http://indiatoday.intoday.in/story/iit-kgp-developing-solar-powered-2-wheelers/1/960094.html

IIT-Kharagpur has undertaken a project to develop solar-powered two-wheelers aimed at helping school children.

A team of faculty and students from the Rajendra Mishra School of Engineering Entrepreneurship at IIT-KGP along with the Institutes Science and Technology Entrepreneurs Park (STEP) are at work to develop solar chargers, power saving devices, road safety sensors and trackers for vehicles to be used by school going children, STEP Managing Director Prof Satyahari Dey said today.

"The Arka Renewable Energy College led by Professor S P Gon Chaudhuri and IIT-KGP will soon launch the solar panel for charging vehicles called e-bike. The concept will be extended to three-wheeler e-rickshaws and can be of great help to the public," Dey said.

The batteries will be charged at solar powered refuelling stations developed by the Renewable Energy Institute headed by eminent scientist S P Gon Chaudhuri.

With expertise in developing solar energy products and leading a multi-institutional UK-India project in clean energy, IIT-KGP has a strong history of promoting technology oriented start-ups, many aimed towards bringing down carbon footprint, creating eco-friendly products and devising low-cost technologies.

The Institute has been testing the two-wheeler, stated to be Indias first 36V electric cycle, in the campus to create a user report, which the production company can use to further develop the product.

"The two-wheeler, Ampere Angel cycle, is Indias first 36V trendy electric cycle completely designed in the country. Its elegant design will helped school children, senior citizens and as well as avid cyclists," an IIT-KGP spokesperson said.

"One can seamlessly switch between two modes - pedal and battery. IIT-KGP will also develop a financial model for Ampere Vehicles," the spokesperson said.

The two-wheeler initiative is supported under the Department of Science and Industrial Researchs Make in India initiative - Promoting Innovations in Individuals Start-ups and MSME (PRISM) scheme.