

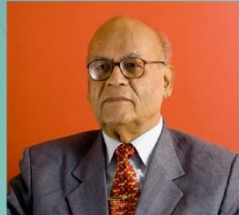


Electrikus...

Issue 2

June 2014

As the chiefs say



From an initiative 3 years back to a tradition now, The e-newsletter has explored all limits of knowledge. I extend my heartfelt greetings to all participants, authors, faculty staff and students associated in this endeavor.

Er. DC Jain
Chairman
(Gyan Ganga Group)



It is a matter of great happiness to me to know that the students have continued the e-newsletter for such a long time with great efficiency. Each edition comes out better than the previous and I have similar hopes from this one.

Mr. Rajneet Jain
Secretary
(Gyan Ganga Group)



I am very pleased to know that our college team is coming out with another issue of the e-newsletter. I heartily congratulate the editorial team. We expect to put a lot of technical knowledge to the readers from this e-newsletter.

Mr. Pankaj Goyal
Executive Director
(Gyan Ganga Group)



This effort of the students will be surely appreciated by one and all. Along with academics, the different activities in college are the keys that will unlock the hidden talents and thoughts in students.

Mr. Apurva Singhai
Executive Director
(Gyan Ganga Group)



It is joyous to know that the students are continuing the legacy of the e-newsletter as it shall help in spreading the activities being conducted by the institute to the public. I wish the team good luck.

Dr. Maneesh Choubey
Group Director
(Gyan Ganga Group)



It gives me immense pleasure to know that another edition of Electrikus is coming out. I wish all the success to the team of the EC branch involved and hope that this edition will also benefit the students in a great manner.

Dr. RK Ranjan
Principal
GGITS, Jabalpur



I am confident that this e-newsletter will provide relevant data about technology and latest happenings around the globe to all the budding engineers of our college. My best wishes to the team for future prospects.

Prof. P.K. Jain
Head (Examination Cell)
GGITS, Jabalpur



This new edition of Electrikus has loads of exciting updates. Technology and time never stop and the updates here keep account of the latest developments. My warm wishes to the Gyan Ganga Group for the publication of this e-newsletter.

Prof. Vinod Kapse
Head (EC Department)
GGITS, Jabalpur



With already the so many incredible issues previously, I congratulate the editors on handling the pressure well and coming out with yet another brilliant edition of Electrikus. We truly are "Committed for Excellence".

Prof. Pankaj Sahu
Faculty Co-ordinator

From the editors



Rahil Minocha - 5th Semester

In this new edition we have tried to experiment a bit hope people appreciate it. Happy Reading.



Mitul Chakroborty - 3rd Semester

Appreciation is the best reward of Hard work. Hope that everybody likes the work and appreciates it.

IN THIS EDITION:

MEMRISTOR

TECHNOLOGY FIGHTING WITH NATURAL ADVERSITIES

The Department

Vision

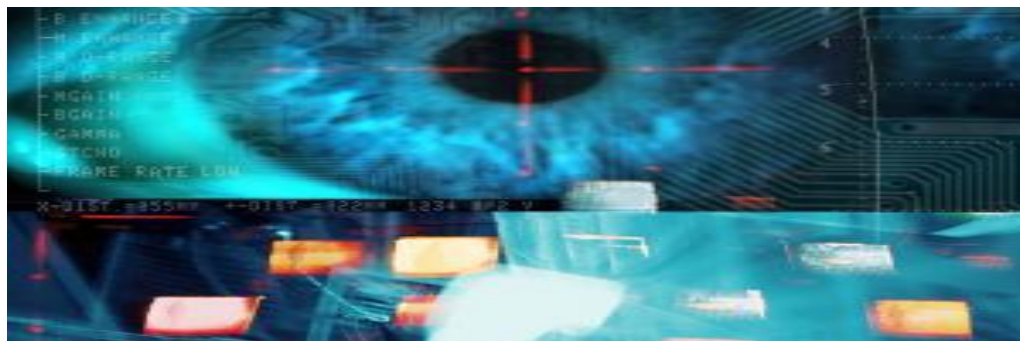
To be centre of excellence in teaching-learning and employability in various fields of Electronics and Communication Engineering to produce globally competent, innovative and socially responsible citizen.

Mission

1. To offer high quality graduate and post graduate programs in Electronics and Communication with strong fundamental knowledge and to prepare students for professional career or higher studies
2. To discover and disseminate knowledge through learning, teaching, sharing, training, research, engagement and creative expression.
3. To foster spirit of innovation and creativity among students, faculty and staff, promote environment of growth, participation in conferences, technical and community services and lifelong learning for all.

Contact lenses with built-in video could be 3D printed

by [Paul Marks](#)



For similar stories, visit the [Aviation](#) and [Nanotechnology](#) Topic Guides Who needs [Glass](#) when you've got contact lenses that can display video and even detect health problems? What's more, lenses with these capabilities could one day be created using a 3D printer.

Most of today's 3D printers work with scraps of plastic or metal and turn them into simple objects. But [Michael McAlpine](#) at Princeton University and his colleagues have developed a 3D printer that can make a five-layered contact lens, one which emits light into the wearer's eyes.

The lens is a transparent polymer with several components embedded inside: nanoscale [quantum dot](#) light-emitting diodes, wiring made from silver nanoparticles, and organic polymers that could act as parts of electrical circuits.

The trickiest part, McAlpine says, was working out which chemical solvents would deposit each layer best, leaving them dry enough for the next layer to adhere. Another challenge was the fact that everyone has uniquely shaped eyeballs. The team scanned the contact lens constantly with two cameras to ensure the final shape matched the user's prescription.

Air Force backing

The work was funded by the US Air Force, which hopes to use such [lenses to display in-flight data](#). Replacing the LEDs with light sensors could also reveal the state of the wearer's retina and possibly monitor pilot health without invasive implants.

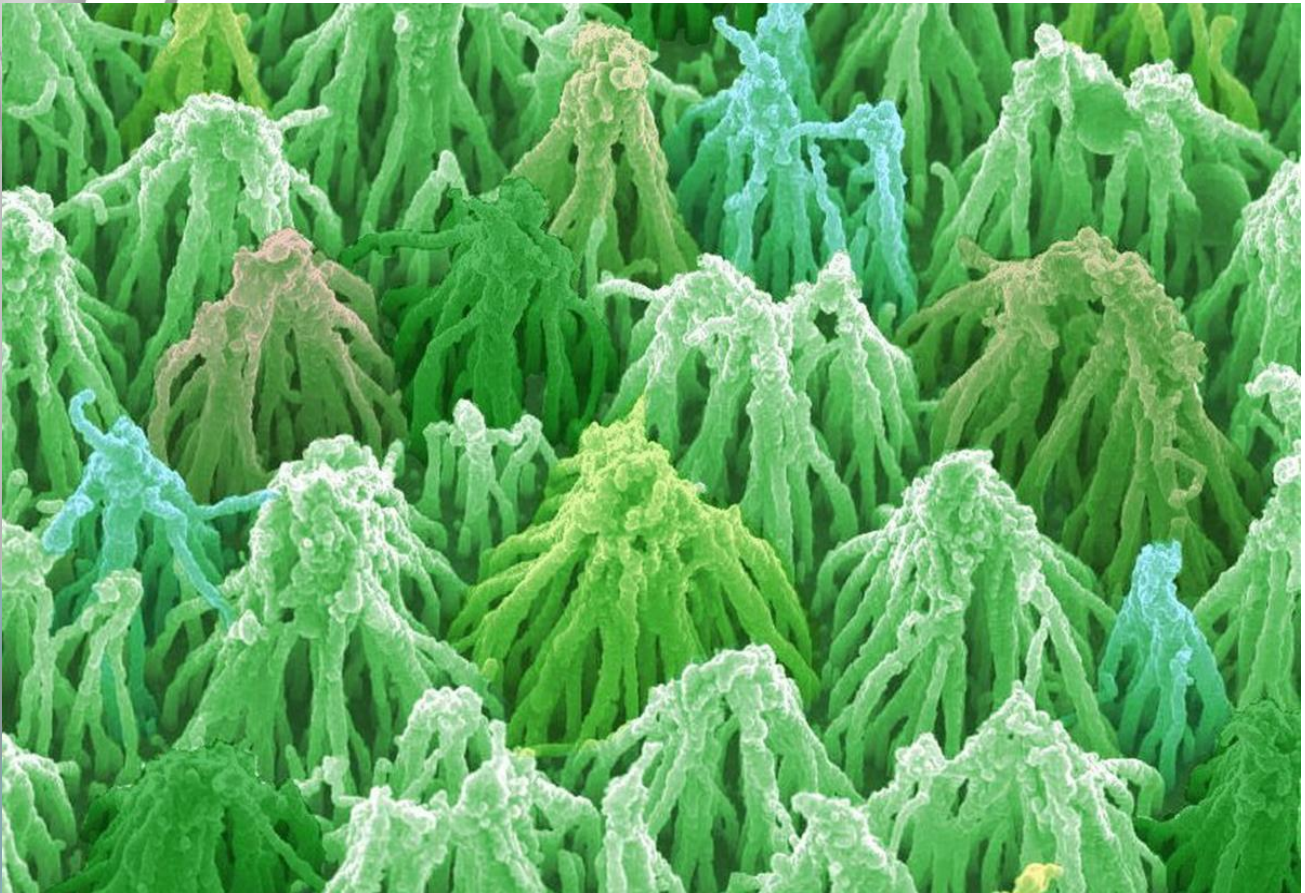
They could also be replaced with sensors that detect chemical biomarkers of fatigue in eye fluids, McAlpine suggests. "Planes have sensors for the state of everything, except the most important thing: the pilot's exhaustion level," he says.

Taking the system out of the lab and into the cockpit won't be easy, however, says physicist [Raymond Murray](#) at Imperial College London. He thinks the 3D printed LED display is interesting, but notes that the voltage it needs to switch on is still too high to use in a commercial contact lens.

In addition, the team needs to ensure the devices have no adverse effects on the body – the materials that make quantum dots, such as cadmium selenide, have known [health risks](#).

Journal reference: [Nano Letters](#), DOI: [10.1021/nl5033292](#)

Diamond-coated carbon forest wins photo prize



It's not a creepy plant-like life form. This image, which captures a miniature diamond-coated forest of carbon nanotubes, has won the overall prize in an [annual science photography competition](#) organised by the UK's Engineering and Physical Sciences Research Council.

[Paul May](#) at the University of Bristol captured the photo with an electron microscope, before adding some colour in Photoshop. It shows what the nanomaterial looks like when wet, after the peaks were coated with a thin layer of diamond to preserve the shape. You can see how the carbon nanotubes, each 50,000 times smaller than a human hair, clump together in pointed, teepee-like clusters – when dry, they stand up straight, like bristles on a brush.

When the structure is placed in a vacuum chamber with a phosphor electrode just above it, applying a high voltage makes electrons travel up to the tip of the clusters before leaping towards the electrode. This gives off light, just like when an electron beam hits the phosphor-coated glass screen in a television. May and his colleagues think the technology could be used to make flat screen displays.

Due to their strength and flexibility, carbon nanotubes are being used to develop the next generation of electronics. The [first functioning computer was recently built from the material](#), while ink made from carbon nanotubes is being used to [turn items of clothing into wearable batteries](#). A [novel biomaterial](#) has even been created by coating butterfly wings with nanocarbon, and it can generate heat from light that falls on it, as well as having interesting electrical properties.