Electrikus...

Issue 4

December 2013

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 developements. 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 :

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.

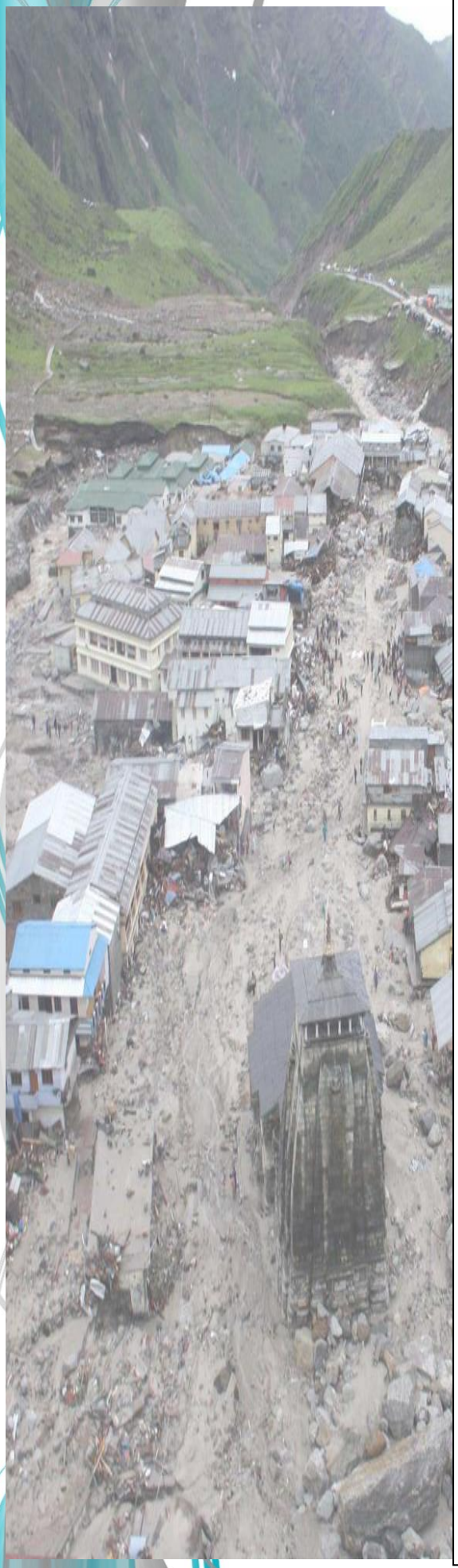
Featured

1 Transistor – 1 Memristor Cell RRAM on flexible substrates advances

Researchers out of Korea recently published a paper on their success in implementing a single titanium oxide based memristor integrated with a single crystal silicon transistor. In addition to future research into improvements for the "read" problem of nonvolatile memory via a diode and unipolar resistor combination, they created and tested a 1 Transistor, 1 Memristor cell model on plastic substrates. When packing cells with the 1T-1M model, they were able to achieve random memory access without the prior difficulties of read-path problems encountered with electrical distortion and interference. The flexible transistor works to limit read current from these memristive sneak-paths. The test arrays were constructed of an 8×8 grid of transistor-memristor cells, and they were able to achieve a 2.8cm long flex to within 1.8cm of each edge, for 100 flex cycles.

One of the biggest problems the wearables industry has faced is the problem of power and state. Ultra-low voltage can only take viability of new material science applications so far; but true nonvolatile memory, especially with the ability to perform even simple logic-on-chip, is really one of the threshold changers to achieve. A recent paper from AIP NASA's Center for Nanotechnology at Ames Research Center on "Copper oxide resistive switching memory for e-textiles" gives a pretty good overview of the state of the field in short summary.

Copper Oxide Resistive Memory for Textile Applications



Deadly Combination

Technology Fighting with the Natural Adversities

As the floods hit Uttarakhand at the end of June, The death toll was significantly reduced with the help of technology. The quick reaction in setting up the communication links in hard hit districts like Uttarkashi and Kedar valley is credited to the INDIAN SPACE AND RESEARCH ORGANIZATION (ISRO). As soon as the Indian Army set up the rescue camps, ISRO assisted the soldiers in technical areas. The measures taken by ISRO are listed below.

- **ISRO deployed its state-of-the-art Disaster Management System (DMS) to the jawans struggling to dispose bodies of victims.**
- **The system connected the team's base camp in Guptkashi with the state police headquarters in Dehradun with Video Conference facility.**
- **ISRO had also given the team satellite phones known as "hand-held terminals" which could work for 7 hours after one full charge.**
- **Although the camps had generators but a solar panel was also installed to ensure dual backup in case the generator malfunctions.**

The DMS came as a boon to the army and state police department which had to communicate with remote areas in the high altitude regions. In case of any emergency, immediate action was taken since the authorities were monitoring via live video streaming.