BYTE QUEST

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Contents:

Byte Quest is the article published by the CSE dept of Vasavi College of Engineering regarding the latest innovative Technologies and Software that have been emerged in the competitive world. The motto of this article is to update the people regarding the improvement in technology. The article is designed by the active participation of students under the guidance of faculty coordinators.

- Good ,bad or indifferent if you are not investing in new technology , you are going to be left behind.

  -Philip Green

- Once a new technology rolls over you, if you're not part of the steamroller, you're part of the road.

  -Stewart Brand.

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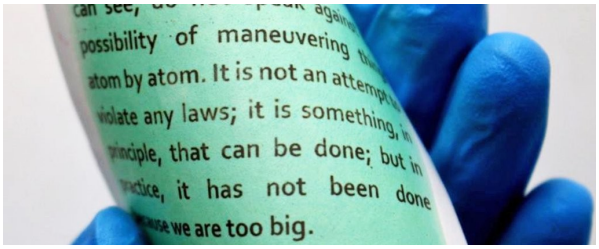
NEW WAY TO PRINT ON PAPER USING LIGHT

A new method for printing on paper using light promises to be much cheaper, and easier on the environment than the traditional ink-based printing we're used to. Scientists have developed a special nanoparticle coating that's easy to apply to normal paper and changes colour when ultraviolet (UV) light shines on it. The colour change can be reversed when the coating is heated to 120 degrees Celsius, and allows for up to 80 rewrites.

This technique can be used everywhere, saving on the cost of ink and paper, and on the environmental cost of their recycling and disposing.

Two types of nanoparticle are combined for the new coating: Prussian blue, and TiO2. Mix these two substances



together to get a coating that's solid blue.

Add some UV light, and the TiO2 particles are excited, releasing electrons that turn the Prussian blue pigment colourless.

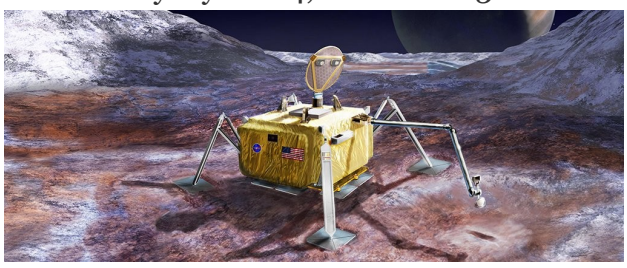
The printing stays in place on the page for at least five days before slowly fading back to blue, but that fading process can be sped up if heat is applied.

P. AMULYA (CSE-A 3/4)

NASA PLANS TO SEND ROBOT LANDER TO EUROPA

NASA is determined to find out if there's life on Europa, with the space agency having just revealed plans to drill into the moon's crust in search of extraterrestrials.

A new report details plans for a lander that could drill roughly 4 inches deep into the moon's surface, and analyse samples using on-board instruments to give researchers vital information on what Europa's made up of, and whether life could flourish there. And the researchers think they've cracked it with this new lander concept, and the mission could be on its way by 2024, with a 2031 arrival



The robot lander design includes a camera system for taking snaps of the surface, and various instruments for live analysis – including a high-gain antenna for communications, and a geophone to monitor geological activity. A Separation -Mass Spectrometer system is also included, which will be used to identify the chemical make-up of samples through the process of ionisation. The researchers are keen to find signs of past or present life hidden in elements. The lander also captures information to help scientists design successor robots to visit Europa in future.

If the plans get the go-ahead from NASA and its partners, the robotic lander could be on its way through space within the next decade.

K. SOWMYA (CSE-A 3/4)

SCIENTISTS HAVE WITNESSED THE VIOLENT BEGINNINGS OF A SUPERNOVA FOR THE FIRST TIME

Scientists have observed the immediate aftermath of a supernova for the first time, detecting a brilliant display of light from the death of a red supergiant star just 3 hours after it exploded at the event called SN 2013fs. This supernova occurred in a galaxy called NGC 7610, which is approximately 160 million light-years away. After the light from this ancient explosion travelled for 160 million years through space, it finally reached Earth in 2013, where it was detected by chance during an automated sky survey being run at the Palomar Observatory near San Diego, California.

Supernovae occur when a star runs out of its nuclear fuel toward the end of its lifetime. As the star begins to feed on its own core, the core collapses, resulting in a huge explosion.

Observations made in SN 2013fs showed that the star was surrounded by a disk of material that had been ejected by the star in the year or so leading up to the supernova. This layer of matter shrouded the star in a cloud of gas some 6.2 billion miles thick, before being obliterated by the supernova's epic finale.

SN 2013fs was what's called a Type II supernova – the most common type of stellar explosion, involving stars with between eight to 50 times the mass of our Sun. Because of this commonality, the researchers think it's possible that other dying stars might also exhibit this 'mass-loss' behaviour in their final days, resulting in similar encircling matter clouds before the supernova eventuates. If that's so, it will help scientists to better understand the processes involved in the lead-up to these gigantic explosions.

The good news is it might not be too long before we find out just how common this actually is.

R. HEMANTH (CSE-B 3/4)