The publication of the Technical e-Bulletin “Manthan” is initiated in the Vidyalaya, with the mission to provide an environment of creativity & learning with fun to the students. We are trying to transform our students into future world leaders by providing them non-stop learning atmosphere. By taking small projects at school level and participating in Regional and National Competitions, they are becoming more innovative, good team members, developers & effective communicators. They are striving for continuous improvement for constant pursuits for excellence. The process is long but we are determined to our professional accomplishments.

How can I miss the opportunity on this occasion to show my heartfelt gratitude towards our KVS visionaries, specially to Dr. Jaideep Das, Deputy Commissioner, KVS, Agra Region for the continuous guidance, help and motivation. Awaiting your responses and suggestions for future issues.

(Munendra Singh)
Principal

Message from the Desk of The Principal

In the present IT era, the changes take place at a very alarming rate. This e-Bulletin is an effort in the direction to provide students as well as teachers, a platform of expression and a source of information in order to keep themselves updated to walk in pace with the modern technical world. Also this is an effort to deviate the young minds from funny computer games to using it as a resource for creativity and knowledge exploration. Eagerly awaiting for suggestions.………..We the Science teachers and Students.

KENDRIYA VIDYALAYA No.4
AFS, GWALIOR

EDITORIAL

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OUR PATRON

Dr. JAIDEEP DAS,
Deputy Commissioner
KVS RO AGRA

MUNENDRA SINGH
Principal
Kendriya Vidyalaya no.4
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Manoj Rawat
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PGT (Chemistry)
This is probably the strangest contemporary invention ever. It was developed by a Somerset engineer, who claims that his machine breaks the law of physics by generating more free power than it consumes. The inventor named his perpetual motion device Alpha Omega Galaxy Freefall Generator. He also added that the machine was made using bicycle parts, a windscreen-washer motor and an array of flywheels with high-powered magnets. The latter are used to help the machine produce energy from gravity. The device to produce power without much noise.

One of the models of loopwing type wind power generator is called the TRONC. It features a hybrid solar and wind energy generator and it doesn't need extra source of energy. Besides, the streetlight can be even connected to such external devices as LED display systems, informs Aving. TRONC represents a complex that includes a small windmill and sunlight panel mounted on top. It also features a loop wing style blade of that is 1.5 meters in diameter.

Perpetual Motion Device that Produces Power From Gravity

Rolltop is not a “virtual and futuristic” gadget existing only on the screen of your computer as in the most of similar concepts and visions! Most of the existing design concepts usually have been developed without any deep technologic and ergonomic elaboration and often could be difficult or even impossible realized.

From the beginning Rolltop has been developed as a real future product. During its development a lot of different scenarios (e.g. usability, functionality etc.) were simulated. Moreover we have included in Rolltop the best worldwide ergonomic, mechanic and electronic practices.

TECHNOLOGY

The device of the flexible display allows a new concept in notebook design growing out of the traditional “bookformed” laptop into unfurling and convolving portable computer. Rolltop incorporates both latest high-tech devices and a new brand design techniques into a computer that will increase the quality and productivity of the designers work.

On top of everything else no laptop bag needed – all computer utilities from an interactive pen through power supply to the holding belt are integrated in Rolltop. This is really an all-in-one gadget.

By Sonika Singh
Transportation is the most important in human life. Everybody used transportation to do their work. People also transport the stuff to make money. Transportation is also necessary for physically challenged people. Physically challenged people are not able to travel easily. They face a lot of problem for travelling. They are not able to carry their stuff when they travel from one place to another place. A wheelchair is a good option for physically challenged people. They travel with that from one place to another place. But the wheelchair moves when the people apply some force on the wheels. But it is too hard for physically challenged people. Some people are disabled with hands. So they are not able to move the wheelchair, therefore every time a person her head forward and the future wheel moves in forward direction and same for the other directions.

DEEPAK KUMAR

So, I designed a wheelchair especially for physically challenged people. Lot of patients or physically challenged people are old and they are abused by their family so they are alone, nobody helps them. I named my wheel chair FUTURE WHEEL. It is electric powered chair, which is operated by the patient or by the physically challenged people easily with the help of the sensor. The sensor is placed on the patient's head. By the motion of the patient's head, the future wheel moves in any direction (forward, backward, left, right). If the patient wants to go forward simply he/she tilt his/her head forward and the future wheel moves in forward direction.

The project future wheel was taken up by master Deepak Kumar of Class XII. The exhibit became the focus of attraction among the other projects on Innovation in Automation Technology in the Science Exhibition conducted by I.I.I.T.M., Gwalior. The unique idea was given due attention by the media and a detailed report was published in the popular daily "Dainik Bhaskar".

Kendriya Vidyalaya No.4, wish the student a very bright future.
was more than pleasing.

“This is a great achievement as Baselworld is strictly an invitation-only event for the watch and jewellery industry, and the most important showcase for our industry anywhere in the world,” said Bausele’s Founder, Christophe Hoppe.

“We attracted attention from other watch brands who were interested in the look of our material and we might manufacture the component for them in the near future.”

Ceramics are an increasingly popular alternative to steel in watch cases because they are lighter, are more tactile, and can be created in a range of colours. However, colour control can be difficult, the design options are limited and the final product can have flaws.

“Because the cases are cast, any tiny gaps or holes can create defect points that cause cracking or deformities,”

It’s one thing to take a Swiss watch to Switzerland, quite another to impress the locals. Australian company Bausele recently did just that, thanks to some clever thinking at Flinders University in South Australia.

Prof David Lewis and colleagues in the Flinders Centre for NanoScale Science & Technology have developed a unique ceramic material that sets new standards for the design and quality of watch cases. Bauselite is very strong, very light and, because of the way it is made, avoids many of the traps common with conventional ceramics.

It was used to create Bausele’s new Terra Australis, which this year became the first watch from Australia to be accepted for showing at Baselworld, the world’s largest watch and jewellery trade fair. The response

Prof Lewis said.

“That leads to a lot of rejects and a lot of wastage which is not what you want in a high-value, high-precision but low-volume manufacturing process. We have taken a step back and adopted a completely new way of making these components that avoids these problems.”

The new material is only used for the top of the case, giving Bausele the flexibility to create a range of unique designs. Potentially it could offer customisation to the point where a buyer’s name could be inscribed into the ceramic.

However, all these ideas can only become reality because of the manufacturing process.

By Kratika Bidran

Nanotechnology used to make watch case

Loopwing Korea Unveils Solar-Powered Streetlights, Wind Power

Having the goal of reducing the demand for grid electricity, a South Korean company decided to create a new type of streetlights and renewable energy generators. Looping Korea presented its latest inventions at the Renewable Energy World 2010.

Its loopwing-type wind power generators boast a one-of-a-kind loop-shaped wing structure that allows generating electricity from winds that have speed as low as 2m/s. In addition, the design also makes it possible for the device to produce power without much noise.

One of the models of loopwing type wind power generator is called the TRONC. It features a hybrid solar and wind energy generator and it doesn’t need extra source of energy. Besides, the streetlight can be even connected to such external devices as LED display systems, informs Aving.

TRONC represents a complex that includes a small windmill and sunlight panel mounted on top. It also features a loop wing style blade of that is 1.5 meters in diameter.
The Future of Medicine Is in Your Smartphone

Over the past decade, smartphones have radically changed many aspects of our everyday lives, from banking to shopping to entertainment. Medicine is next. With innovative digital technologies, cloud computing and machine learning, the medicalized smartphone is going to upend every aspect of health care. And the end result will be that you, the patient, are about to take center stage for the first time.

With the smartphone revolution, an increasingly powerful new set of tools—from attachments that can diagnose an ear infection or track heart rhythms to an app that can monitor mental health—can reduce our use of doctors, cut costs, speed up the pace of care and give more power to patients. Digital avatars won't replace physicians: You will still be seeing doctors, but the relationship will ultimately be radically altered. (I consult for several companies on many of the issues discussed here.)

All of this raises serious issues about hacking and personal privacy that haven't yet been addressed—and the accuracy of all of these tools needs to be tested. People are also right to worry that the patient-doctor relationship could be eroded, diminishing the human touch in medicine. But the transformation is already under way.

Let's say you have a rash that you need examined. Today, you can snap a picture of it with your smartphone and download an app to process the image. Within minutes, a dedicated computer algorithm can text you your diagnosis. That message could include next steps, such as recommending a topical ointment or a visit to a dermatologist for further assessment.

Smartphones already can be used to take blood-pressure readings or even do an electrocardiogram. ECG apps have been approved by the U.S. Food and Drug Administration for consumers and validated in many clinical studies. The apps' data are immediately analyzed, graphed, displayed on screen updated with new measurements, stored and (at an individual's discretion) shared. I thought I'd seen it all in my decadeslong practice as a cardiologist, but recently, for the first time, I had an ECG emailed to me by a patient, with the subject line, "I'm in atrial fib, now what do I do?" I immediately knew that the world had changed. The patient's phone hadn't just recorded the data; it had interpreted it.

Now, at any time of day or night, you can demand and get a secure video consultation with a doctor via smartphone at the same cost (about $30-$40) as the typical copay charge through employer health plans. This may seem exotic now, but several large consulting firms—including Deloitte and PricewaterhouseCoopers—have forecast that virtual physician visits (replacing physical office visits) will

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In many U.S. cities, you can even use a mobile app to request a doctor’s house call during which a physician could not only provide a consultation but could even perform procedures, such as suturing a wound, which would have usually required an expensive emergency room visit.

Many surveys show that most consumers want to get information about the actual costs of their care from their doctors but can’t get it. Going forward, what things cost will no longer be the great unmentionable hanging over medicine: Cost-transparency apps for your smartphone already exist and are quickly being...
Solar Impulse 1 (HB-SIA)

The first Solar Impulse aircraft – registered as HB-SIA – was primarily designed as a demonstration aircraft. It has a non-pressurized cockpit and a single wing with a wingspan similar to that of the Airbus A340 airliner. Under the wing are four nacelles, each with a set of lithium polymer batteries, a 10 hp (7.5 kW) electric motor and one twin-bladed propeller. To keep the wing as light as possible, a customised carbon fibre honeycomb sandwich structure was used.

11,628 photovoltaic cells on the upper wing surface and the horizontal stabilizer generate electricity during the day to power the electric motors and to charge the batteries allowing flight at night, theoretically enabling the single-seat plane to stay in the air indefinitely.

The aircraft’s major design constraint is the capacity of the lithium polymer batteries. Over an optimum 24-hour cycle, the motors can deliver a combined average of about 8 hp (6 kW), roughly the power used by the Wright brothers’ Flyer, the first successful powered aircraft, in 1903. In addition to the charge stored in its batteries, the aircraft uses the potential energy of height gained during the day to power its night flights.

By Krishna Sachan, XII A

LIGHTE EMITTING PAPER

Researchers have created a light-emitting display made out of paper—opening the door to a new form of display lighting that is cheaper than LEDs or OLEDs.

Created by a team from the, the paper is made up of a series of layers sprayed onto a sheet of paper: an adhesive, four conductive layers able to transform energy into light, and a “capping” layer to keep the layers in place. When an 11 volt current was applied to the paper, it glowed as brightly as a standard computer display.

The team believes the paper could function as an affordable—and safer—and alternative to LEDs and OLEDs, and could also be used to replace some of the displays and pricing tags in stores.

A conventional OLED, which could one day be replaced by the paper-based version.
As scientists “start to put robots out into the workplace, this will become important,” says Loeb. In simulations SynTouch has shown that, with NumaTac coverage, a robotic arm that makes movements about the scale of those made by a human arm would have sufficient time to stop before it is destroyed by a collision with a rigid object. Without NumaTac, Loeb says, that robot could wind up a heap of “mangled metal.”

Embedding robots with a sense of touch, with the notion that tactile feedback is critical for surgical robots. Among its many other functions, human skin helps sense collisions when they occur. An elbow banged into a door results in a signal from the brain instructing the elbow to stop colliding with the hard surface. Robots are generally built with a metal or hard plastic exterior, which means if they hit something they are not supposed to, they have no way of sensing that they should stop or go back. Their machinery could be damaged before the action that caused the collision stops.

NumaTac pads, developed by SynTouch LLC, are made of open-cell polyurethane foam—the same material used to construct injection-molded seat cushions—and contain sensors that allow robots to detect and respond to collisions. The NumaTac pads “are there when needed, like air bags. They hang out, they’re flexible, and they can be made in arbitrary shapes for whatever protection you need,” says Gerald Loeb, SynTouch CEO.