



ELECTROBUZZ

ELECTRONIC DEPARTMENT

MAGAZINE

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ISSUE-8: MARCH2019
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Department of Electronics Engineering



Vidya Vikas Education Trust's

Universal College of Engineering

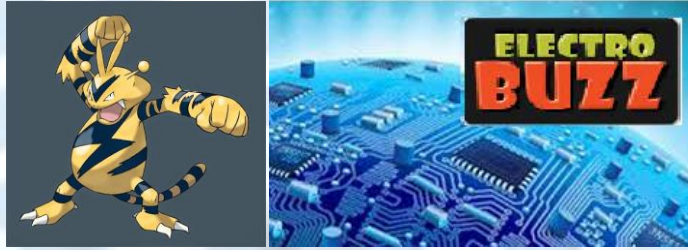


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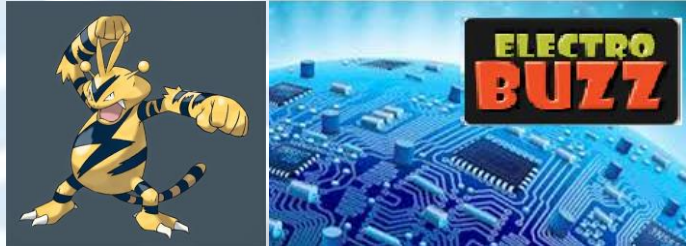
RASPBERRY PI 4 WITH 3X FASTER CPU, DUAL 4K DISPLAY OUTPUTS, UP TO 4GB LPDDR4 RAM LAUNCHED

Taking many fans and community members by surprise, the Raspberry Pi foundation has announced the brand new Raspberry Pi 4 Model B, a significant upgrade to the Raspberry Pi 3 generation. The Raspberry Pi 4 series was not expected until 2020, but according to the launch announcement, the second of four planned silicon revisions for the new device's processor turned out to be production-ready, saving up to a year of development time. In a blog post announcing the release, Raspberry Pi Ltd founder and CEO, Eben Upton, describes this new model as able to provide a "PC-like level of performance for most users" for the first time, without sacrificing any of the Raspberry Pi's standard capabilities as a development and hobbyist device.

The new device retains the \$35 (approximately Rs. 2,430) price of its predecessors but will be available in multiple variants for the first time. The base \$35 unit has 1GB of RAM, and there will also be a \$45 (approximately Rs. 3,125) option with 2GB of RAM and a \$55 (approximately Rs. 3,820) option with 4GB of RAM.

All three versions are already listed for sale on Robu.in for Rs. 3,215, Rs. 3,999, and Rs. 4,999 respectively. The devices are listed as "coming soon" at other websites that sell Raspberry Pi devices and accessories in India. A Raspberry Pi Desktop Kit will also be available priced at \$120 (approximately Rs. 8,330). This will include the 4GB RAM version of the Raspberry Pi 4 Model B, an official case, a power supply, a keyboard and mouse, a pair of Micro-HDMI to HDMI cables, a physical updated Beginners Guide book, and a 32GB microSD card. All these components will also be available for purchase individually. There is no equivalent Model A yet, as there is with the Raspberry Pi 3. These are designed to be more affordable but the foundation has stated that there is currently no way to sensibly scale down the Raspberry Pi 4 Model B enough to achieve a lower price.

The new Raspberry Pi 4 Model B features a brand new quad-core 1.5GHz 64-bit CPU based on ARM Cortex-A72 cores. It is the first to use a 28nm manufacturing process compared to the 40nm chips used



by previous Raspberry Pi models. This CPU is said to offer around 3x the performance of its predecessor. It features VideoCore VI graphics, and 4K 60fps video output (or two 4K 30fps outputs) plus HEVC video decode.

Other specifications of the Raspberry Pi 4 Model B include a Gigabit Ethernet port with PoE (power over ethernet), dual-band Wi-Fi 802.11ac, Bluetooth 5, two USB 2.0 and two USB 3.0 ports, and dual 4K monitor support. The device now uses LPDDR4 memory with much higher bandwidth. An upgrade to USB Type-C for power input allows for enough current to support connected USB devices, which was not possible before. The Raspberry Pi foundation has also made affordable USB Type-C power supplies, cables, and adapters available through its global distributors to help reduce overall development costs. There is also a new version of Raspbian, the Debian-based operating system for Raspberry Pi devices. The new release features a browser based on Chromium 74 and other modernised applications and UI elements.

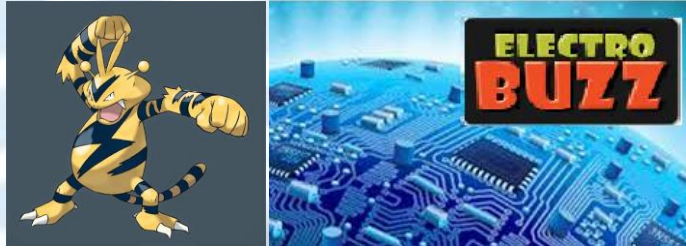
UPGRADED BRAHMOS WITH 500-KM RANGE READY: CEO, BRAHMOS AEROSPACE

"India has successfully test-fired a vertical deep dive version of BrahMos, the world's fastest supersonic cruise missile. "

The upgraded version of the homegrown BrahMos missile with an enhanced range of up to 500 km is ready, the CEO of BrahMos Aerospace, Sudhir Kumar Mishra, has said. Mishra, in an interview broadcast on Doordarshan News Sunday, said it is possible to increase the range of this missile because India is now a part of the elite Missile Technology Control Regime (MTCR).

"India has successfully test-fired a vertical deep dive version of BrahMos, the world's fastest supersonic cruise missile that can now change the dynamics of conventional warfare... The upgraded version of the missile with enhanced range of up to 500 km is also ready," he said.

He said India is now the only country in the world to integrate long-range missiles onto fighter jets after the BrahMos missile was test-fired from a Sukhoi 30 aircraft of the Indian Air Force.



Brahmos missile, which cruises at almost three times the speed of sound at Mach 2.8, is the heaviest weapon to be deployed on the Su-30 fighters.

"We can take on any ship at sea up to 300 to 400 km (far) and after some time, may be longer; we can take on land targets up to hundreds of km and with the test that we have conducted some time back (from Sukhoi 30), ranges up to thousands of km," he said, according to a release by the state-run broadcaster.

Mishra said for the Army, the Navy and the Air Force, Brahmos has become a weapon of choice and the steep 90-degree version has become an ultimate aircraft carrier killer. He said the technologies that BrahMos Aerospace has developed did not exist either in India or Russia earlier. BrahMos Aerospace is a joint venture company owned by the governments of India and Russia and its missiles are produced in India. Former Deputy Chief of the Army, Lt General Subrata Saha, who also spoke on the programme, said the steep dive version of the missile is a game changer for mountain warfare (of the kind that was witnessed during the Kargil war).



Budget 2019: New education policy to focus on research

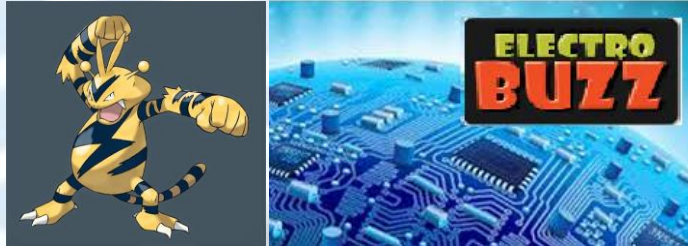
Rs 400 crore allocated for setting-up world-class education institutes

The Centre on Friday allocated Rs 400 crore for setting up world-class education institutes and announced 'Study in India' programme that will aim at attracting foreign students to the country.

Presenting the first Budget of the NDA government in its second term, Union Finance Minister Nirmala Sitharaman said the government will bring in a new national education policy to transform India's higher education system to one of the best in the world.

The policy proposes major changes in both school and higher education, improve governance and gives more focus on research and innovation, for which a National Research Foundation (NRF) would be set up to coordinate and promote research in the country, she said.

"NRF will ensure that the overall research ecosystem in the country is strengthened with focus on identified thrust areas relevant to our



national priorities and towards basic science without duplication of effort and expenditure,” the minister explained.

The funds available with all ministries will be integrated in NRF and would be adequately supplemented with additional funds, she said.

'Study in India' programme

Sitharaman said to build “world-class institutions” in the field of education, Rs 400 crore has been allocated for the 2019-20 fiscal, which is over three times the revised estimates for the previous year.

The finance minister also announced the ‘Study in India’ programme that will focus on attracting foreign students to the country’s higher education institutes.

A draft legislation for setting up Higher Education Commission of India (HECI) would be presented in the year ahead, she said, adding, “This will help to comprehensively reform the regulatory system of higher education to promote greater autonomy and focus on better academic outcomes.”

The minister also said the Khelo India Scheme, aimed at reviving sports culture in India at the grass-root level, will be expanded to provide all necessary financial support.



Also, a National Sports Education Board for Development of Sportspersons would be set up under the Khelo India Scheme to popularise sports at all levels.

Sitharaman highlighted that three institutes -- two IITs and IISc Bangalore -- are in the top 2,000 institutions in world university rankings, which, she claimed, was not there five years back.

This has been achieved due to concerted efforts by the institutions to boost their standards and also project their credentials better, she said.





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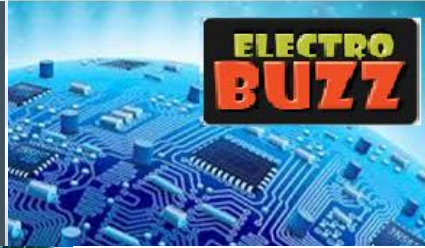


INDUSTRY 4.0 THE FUTURE WORK

Automation has been happening for over 200 years. So far, it has created a lot more work than it replaced. Will Industry 4.0 be different?

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INDUSTRY 4.0

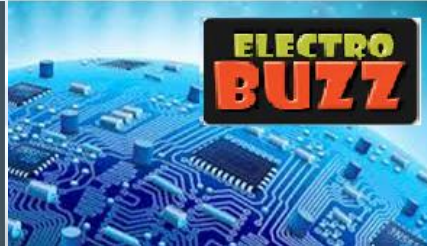
Historically machines have created far more jobs than they have replaced, but this time will be different says MIT's Andrew McAfee, author of the book *The Second Machine Age*. With the advent of Artificial Intelligence (AI), machine learning and the Internet of Things (IoT) – in short, Industry 4.0 – machines are quickly getting better at performing both manual and cognitive tasks without much human intervention. In the past machines have augmented human labor, according to McAfee, “Now, they are replacing it.”

Oxford economists Carl Benedikt Frey and Michael Osborne published a widely-noted study on the effects of automation in 2013. It concluded that up to 47 percent of jobs in the USA are at high risk of being made redundant. Subsequent studies predicted similar figures for other countries.

The facts, so far, do not bear this out. An increasing number of studies show a positive correlation between automation and jobs – not only in the past, but also under the conditions of Industry 4.0. For example, the positive impact of robots on employment can be seen in Germany, says Joe Gemma, President of the International Federation of Robotics (IFR). The country's automotive sector holds the top position for robot density in Europe – with about 1,150 industrial robots per 10,000 employees. “As a result,” says Gemma, “employment in the German car industry rose by about 93,000 jobs in the period 2010 to 2015.” Similar trends can be observed in the UK and in America.

The biggest market for industrial robots is China, a relative newcomer to modern automation. Some observers worry that the dark factory will become a reality in that country. This is unlikely as Chinese robot density at present is extremely low – at around 30 robots per 10,000 workers. Automation in Chinese tech-heavy industries, such as cars, does not primarily serve to cut jobs. It serves to make these firms competitive and thus save jobs. In addition, it is not jobs which are replaced by automation – it is tasks within jobs. The implication is that while most jobs will change, they will not disappear. A study published by the McKinsey Global Institute in 2017 comes to the same conclusion: “More occupations will change than will be automated away.”

SIEMENS ON TARGET FOR 2030 CLIMATE PLEDGE



Before the Paris Agreement was signed to put the world on a path to lower carbon emissions, Siemens made a reduction pledge of its own based on its own carbon-neutral program. How far along is Siemens toward its goal of being climate neutral by 2030.



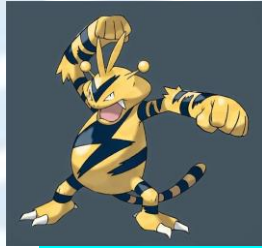
In 2015, Siemens was the first major industrial company to commit to cut its carbon footprint in half by 2020 and be carbon neutral by 2030. At that time, CEO Joe Kaeser noted that "taking action is not just prudent – it's profitable." The company is working toward its goal in four areas: energy-efficient buildings and production, distributed energy systems, green electricity purchasing, and intelligent e-mobility solutions million globally until 2020 to outfit its production facilities with energy-management features and building automation systems,

as well as to implement energy-efficient drive systems for manufacturing. The investment will result in annual savings of €20 million in energy costs from 2020 onwards. Digital technologies play a major role in the energy sector. Siemens uses them to boost efficiency in the generation, transmission, and distribution of electricity for large utilities and for other projects.

By fiscal 2018, 13 projects were completed in Europe, North America and Asia. In addition, 19 energy efficiency projects were ongoing. Siemens is working to reduce the emissions of its company fleet of around 47,000 vehicles. The goal here is to reduce emissions and related fuel costs by 33 percent by 2025, which amounts to a reduction to approximately 200,000 metric tonnes of CO₂. In fiscal 2018, emissions stood at approximately 300,000 metric tonnes of CO₂.

Helping cities address climate change

In the fourth and final area of its efforts to reduce carbon pollution, Siemens has greatly expanded its purchase of green electricity. Board member Roland Busch explains the crucial importance of sustainable operations: "Decarbonization is absolutely essential in order to halt climate change and its dramatic consequences." Now that the Paris Agreement on climate change has gone into effect, the commitments must be realized through concrete action, he says: "The global economy must consistently drive this process and demonstrably reduce CO₂ emissions in all sectors." Besides doing its part to reduce its own emissions, Siemens' innovative solutions are helping cities to meet the challenges of urbanization and climate change. "Seventy percent of all emissions will come from cities. If we want to win the battle against climate change, we need to win the battle in the cities first," says Busch.



PULWAMA TERROR ATTACK

A suicide bombing attack on a CRPF in Pulwama region of Jammu and Kashmir killed 40 CRPF paramilitary troopers on February 14, 2019. Jaish-e-Mohammad had claimed responsibility for the attack.

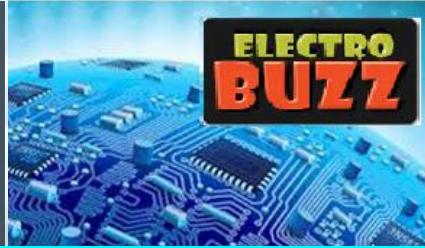
In the last five years, Jammu and Kashmir has witnessed a 93 per cent rise in death of security personnel. A chunk of these attacks have occurred in Pulwama region of J&K. At least 40 Central Reserve Police Force (CRPF) paramilitary troopers were killed in the deadliest terror attack witnessed in three decades of Kashmir's insurgency. The surprise attack by a Jaish-e-Mohammed (JeM) suicide bomber left the nation in shock and anger while Prime Minister Narendra Modi gave security forces a



freehand to strike back with equal force. On Thursday, Jaish bomber Adil Ahmed Dar, 20, rammed a Scorpio SUV loaded with 350 kilograms of explosives into one of the buses -- carrying 35-40 troopers -- out of a 78-vehicle CRPF convoy. While 40 were killed in the attack, several injured personnel continue to battle for their lives. Even as the nation continues to bewail the death of soldiers killed in Pulwama, many including the grief-stricken family members of the ill-fated jawans have demanded strong action against the Pakistan-based terror outfit. The heinous incident has united all political parties across the country while leaders from

all over the world have condemned the dastardly attack; the United States even went on to the extent of warning Pakistan to not harbour terrorism.

Over 45 countries including the US and China reacted to the dastardly attack on CRPF jawans. The United States not only condemned the attack but also attacked Pakistan for harbouring terrorists. Russian President Vladimir Putin sent condolences to Prime Minister Narendra Modi and his counterpart President Ram Nath Kovind. France also condemned the attack and extended support to combat terror networks and cut their funding to prevent such cross-border attacks. While China expressed condolences and condemned the act of terror, it still did not change its stance on Masood Azhaar, who is the founder of Jaish-e-Mohammed Support also poured in from Australia, European Union, Nepal, Bhutan, Sri Lanka, Afghanistan, Maldives, Bangladesh and a host of other countries



INDIAN JETS STRIKE IN PAKISTAN IN REVENGE FOR KASHMIR ATTACK

The Indian Air Force (IAF) carried out an air strike on the terror pads of Pakistan. The IAF, at 3.30 am this morning, dropped 1,000 kg of bombs in areas of Pakistan-occupied Kashmir. They reportedly used 12 Mirage 2000 fighter jets and blew up areas like Balakot, Chakothe and Muzaffarabad. The Indian Foreign Ministry confirmed in a news briefing that a strike had occurred but would give no further details. No casualties or damage were reported, General Ghafoor said. "Facing timely and effective response from Pakistan Air Force released payload in haste while escaping which fell near Balakot," General Ghafoor wrote. The American government has typically been a broker between India and Pakistan, conducting shuttle diplomacy in similarly heated situations. But President Trump has taken a hard line on Pakistan while drawing closer to India since coming to office in 2017. Observers fear the situation may escalate further in the absence of a third nation tamping down tensions. Early last year, Mr. Trump cut some \$1.3 billion in military assistance to Pakistan because of the country's support of terrorist groups.

VYRO 2k19

Every year Universal College of Engineering organizes Technical Festival VYRO. The students from different colleges get chance to visit the college and understand the culture and facilities in professional technical colleges. The students enjoy the event with power packed fun games. This year the VYRO is scheduled on 15th February 2019 and the entire team of Department of Electronics invited all students to participate and enjoy!!!!

The Department of Electronics Engineering and Electronics and Telecommunication Engineering has organized four competitions in VYRO 2K19. Students from various departments and colleges including First year have participated enthusiastically.

Robot-sumo: **Robot-sumo** is a sport in which two robots attempt to push each other out of a circle (in a similar fashion to the sport of sumo). The robots used in this competition are called sumobots.



First Prize Winner of ROBOT-SUMO (BE ELECTRONICS)



Second Prize Winner of ROBOT-SUMO (ELECTRONICS and EXTC)



Line Follower



Robo Race



Robo Obstacle