



Vidya Vikas Education Trust's

Universal College of Engineering

Accredited with B+ Grade by NAAC

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Current Wave

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College Profile:

Everything you need to know about us:

Embraced by lush greenery and scenic beauty, Universal College of Engineering is a treasured place for aspiring engineers to leave their imprints on success.

As a college within the wider network frame, we are one of the fastest-growing institutions in India. Our institute has been accredited by the National Assessment and Accreditation Council (NAAC) with a B+ grade in the first cycle of accreditation. Times of India Survey Ranked No.1 in India among Top Emerging Private Engineering Institutes for 6 consecutive years 2015, 2016, 2017, 2018, 2019, and 2020 and the saga of accolades continues.

In response to the expectations of quality technical education, our college is approved by the All-India Council for Technical Education (AICTE), New Delhi; Recognized by the Directorate of Technical Education (DTE), Government of Maharashtra; affiliated to Mumbai University. Our college is also associated with professional bodies like IEEE, IETE, ISA, and CSI to update the revolutionary technological advancements.

We offer 4 years of full-time Bachelor of engineering programs in Computer Engineering, Civil Engineering, Artificial Intelligence & Machine Learning, Information Technology and Data Engineering.

The unique state-of-the-art facility of the institute has been carefully designed to accommodate the needs of the students. Laboratories are equipped with world-class facilities based on the latest technology of different sectors. Our smart classrooms are well ventilated, spacious, and equipped with overhead and LCD projectors along with the public address system. The College library provides arich collection of specialist library resources and services to support student's academic work and enrich their research skills.



We are obliged to equip our students to get placed in highly reputed companies by mentoring their necessary skill set for cutting-edge technologies. The core highlighted areas are helping students with their technical competency, communication skills along with career guidance and counseling.

Universal College of Engineering has produced many successful alumni who are working in reputed organizations in India and abroad and have contributed immensely to the cause of nation- building and society. We welcome all engineering aspirants to create an incredible legacy in the field of engineering.





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Top 5 IoT Trends that will Shape the Future in 2023



The Internet of Things (IoT) is the wave of the future, making the world system more efficient. It has achieved incredible progress over the years. The Internet of Things, as one of the most intriguing and encouraging comparatively fresh phenomena, has captured our attention and has the potential to reshape all industries.

Computers, followed by smartphones, were the initial devices to be linked to the internet. Over the last decade, our homes and offices have become overrun with smart appliances such as smart TVs, refrigerators, and other devices. Simultaneously, we have grown accustomed to working alongside smart equipment in the workplace, driving smart cars in smart cities that have a rather advanced networking system due to IoT.

It is anticipated that billions of devices will be linked to the internet by 2023. The sales of IoT devices and applications will skyrocket. They will produce, share, acquire, and assist us in a variety of ways with data. So, here's a quick rundown of some of the main developments influencing the way we use and connect using IoT in 2023.

1. IoT in Industrial Production



The Internet of Things will continue to evolve and improve data-driven decisions in 2023, especially in sectors like production, healthcare, and commercial industries. This is one of the most significant IoT developments.

The Industrial Internet of Things (IIoT) currently offers manufacturing professionals performance, efficiency, lower operational costs, and a secure working environment.



According to predictions, the IIoT will continue converting conventional manufacturing into productive automated factories with adaptable supply chains and high-quality goods in 2023. Enterprise software built on the IIoT enables the replacement of normal manual.

2. Healthcare



IoT technologies are already widely used in the healthcare industry to monitor medical devices and evaluate patients' health problems in real-time, against the context of the growth of telehealth. The adoption of automated medicine dosage, intelligent wearables, monitoring devices, and other IoT-connected diagnostic supplies will continue to grow. The ability of healthcare practitioners to keep tabs on patients' conditions away from the hospital or doctor's office is one of the major technological shifts. This permits round-the-clock treatment and frees up important resources for patients who require emergency assistance.

Speaking of the application of IoT in the commercial healthcare industry, the introduction and gradual upgradation of wearable technology enable everyone to learn more about their own health and wellness, which again will help relieve the burden on the current healthcare systems by enabling us to seek treatment sooner when something is wrong and learn more about how diet and lifestyle affect our health. In the upcoming year, we may anticipate the release of more devices, such as wearable skin patches, in addition to the already widely available smartwatches equipped with heart rate and oxygen level monitoring sensors.

3. Cybersecurity



IoT gadgets make our lives simpler and easier, but they also expose us to newer and diverse cyberattacks. Simply put, the more linked gadgets we have in our settings, the more possible entry points there are for intruders. Organizations, device makers, and security professionals will intensify their efforts to fend off malicious activity in order to reduce their chances of gaining access to our sensitive data when the number of devices grows in 2023 and beyond.

Since tackling the security issue is essential for ongoing IoT technology, security concerns are at the top of the list of IoT trends for 2023. We may anticipate that IoT devices will soon feature tiered machine-to-machine validation and enhanced authentication with biometric logins.



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Sugar cube 100W power stage gets more efficient



“BMR510 now utilises advanced materials of magnetic core, yielding high inductance in a small package size, allowing lower switching frequency operation than would be necessary with the gapped ferrite cores previously used,” it explained. “This in turn reduces switching losses, improving efficiency by up to 1.5% to 90% compared with the original solution at 13.5V input, 0.8 V 40A output.”

There is only one model, the BMR510x034/002, which can convert 4.5 – 16V to 0.5 – 1.3V. It includes mosfets, drivers and inductors, but additional capacitance is needed. as well as an

external PWM controller.

While tiny, at 10 x 9 x 7.6mm, the device can handle an eye-opening 104W (182W peak) and 140A peak. Flex BMR510 dc-dc graph Flex’s BRM510 efficiency graph. What does the ‘excludes driver losses’ footnote mean?

“The BMR510 in essence is the power train consisting of two uncoupled, stand-alone phases that can operate in interleaved mode,” Flex marketing manager Phil Goff told Electronics Weekly. “In addition to the main input voltage, the units also require a separate supply voltage of 3.3V to power the driver and internal circuitry of the smart power stages. This rail consumes extraordinarily little power and is ignored in the efficiency calculation, which is what the comment here refers to.”

It has a two-phase topology, accepts tri-state PWM inputs from the external controller, and has a separate enable input. “Output over-current and over-temperature protection are included, and sensed values are available for remote monitoring,” said Flex.

Optimised for top-side cooling (top image), terminations are BGA solder-bump, or optionally LGA. Thermal models are available.

Integration into almost any test system is simple as the front panel boasts SMA connectors for the channel inputs, clock, and trigger inputs and outputs, as well as four multi-functional digital I/O lines. The extra clock and trigger connections make it possible to synchronize the cards with additional digitizers or other measurement devices.

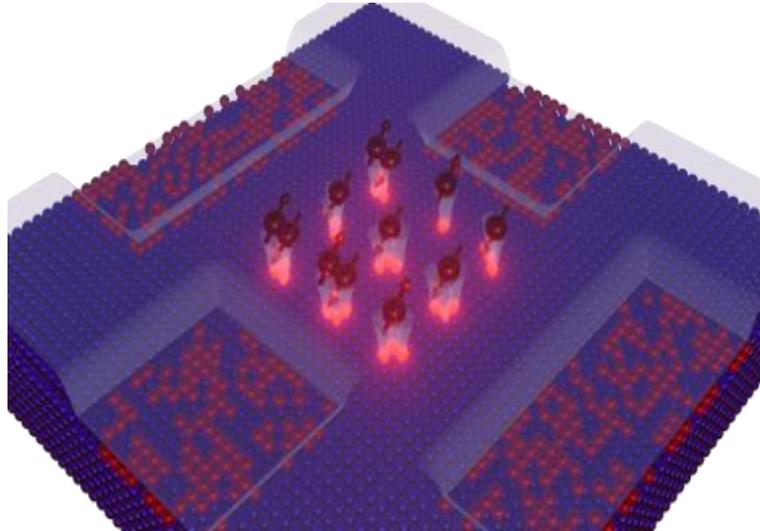


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Measuring the behavior of electrons injected into quantum dots



The researchers made multiple 3-by-3 grids of precisely spaced quantum dots, each comprising one to three phosphorus atoms.

Attached to the grids were electrical leads and other components that enabled electrons to flow through them. The grids provided playing fields in which electrons could behave in nearly ideal, textbook-like conditions, free of the confounding effects of real-world materials.

The researchers injected electrons into the grids and observed how they behaved as the researchers varied conditions such as the spacing between the dots.

For grids in which the dots were close, the electrons tended to spread out and act like waves, essentially existing in several places at one time. When the dots were far apart, they would sometimes get trapped in individual dots, like electrons in materials with insulating properties. The grids provided playing fields in which electrons could behave in nearly ideal, textbook-like conditions, free of the confounding effects of real-world materials. Advanced versions of the grid would allow researchers to study the behavior of electrons in controllable environments with a level of detail that would be impossible for the world's most powerful conventional computers to simulate accurately. It would open the door to full-fledged "analog quantum simulators" that unlock the secrets of exotic materials such as high-temperature superconductors. It could also provide hints about how to create materials, such as topological insulators, by controlling the geometry of the quantum dot array.



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STMicroelectronics Boosts EV Performance and Driving Range with New Silicon-Carbide Power modules



STMicroelectronics, a global semiconductor leader serving customers across the spectrum of electronics applications, has released high-power modules for electric vehicles that boost performance and driving range. ST's new silicon-carbide (SiC) power modules have been selected for Hyundai's E-GMP electric vehicle platform shared by KIA EV6 and several models.

Five new SiC-MOSFET-based power modules provide flexible choices for vehicle makers, covering a selection of power ratings and support for operating voltages commonly used in electric vehicle (EV) traction applications. Housed in ST's ACEPACK DRIVE package optimized for traction applications, the power modules are reliable thanks to sintering technology, robust, and easy for manufacturers to integrate in EV drives. Internally, the main power semiconductors are ST's third-generation (Gen3) STPOWER SiC MOSFETs, which combine industry-leading figure of merit (RDS(ON) x die area) with very low switching energy and super performance in synchronous rectification.

"ST silicon carbide solutions are enabling major automotive OEMs to set the pace of electrification when developing future generations of EVs," said Marco Monti, President, Automotive and Discrete Group, STMicroelectronics. "Our third-generation SiC technology ensures the greatest power density and energy efficiency, resulting in superior vehicle performance, range, and charge time."

a leader in the automotive EV market, Hyundai Motor Company has chosen ST's ACEPACK DRIVE SiC-MOSFET Gen3 based power modules for its current-generation EV platform, called E-GMP. In particular, the modules will power the Kia EV6. "ST's SiC-MOSFET-based power modules are the right choice for our traction inverters, enabling longer range. The cooperation between our two companies has realized a significant step towards more sustainable electric vehicles, leveraging ST's continuous technological investment to be the leading semiconductor actor in the electrification revolution," said Mr. Sang-Cheol Shin, Inverter Engineering Design Team at Hyundai Motor Group.



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As an industry leader in this technology, ST has already supplied STPOWER SiC devices for more than three million mass-produced passenger cars worldwide. Compared to conventional silicon power semiconductors, smaller SiC devices can handle higher operating voltages that allow faster charging and superior vehicle dynamics. Energy efficiency is also increased, which boosts driving range, and reliability can be extended. SiC is gaining mass adoption in multiple EV systems such as the DC-DC converter, traction inverter, and onboard chargers (OBC) with bi-directional operation ready for vehicle-to-grid power transfer. ST's SiC strategy, as an integrated device manufacturer (IDM), ensures quality and security of supply to serve carmakers' strategies for electrification.

Merry Christmas and Happy New Year



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