

FutureHorizons



The Global Semiconductor Industry Analysts

FH MONDAY

15 June 2020

3D Ultrasonic Sensor Can See with Sound

Munich-based Toposens has developed a 3D ultrasonic sensor technology that perceives its environment via the principle of echolocation – just like a bat. Founded in 2015, Toposens has developed 3D ultrasound sensor vision that uses sound to support robust, low-cost and precise near-field 3D vision for applications such as autonomous driving, robotics and smart buildings.

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CSIR-NAL, Bengaluru Developed Non Invasive Ventilator For COVID-19

Researchers at Durgapur-based Central Mechanical Engineering Research Institute (CMERI) has indigenously developed a ventilator amid rising cases of COVID-19. The below design, controllers and embedded electronics of this ventilator have all been customised to ensure price efficacy as well as meeting the requirements of the relevant industries.

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GaN, SiC Offer a Power Electronics Alternative

Improved energy efficiency and growing demand for longer battery life are prompting the power electronics community to take yet another hard look at the tradeoffs presented by wide bandgap semiconductor technology operating at higher voltages, temperatures and frequencies.

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TALK TO US



Solving the Challenges of Driving SiC MOSFETs

Transistors are sometimes thought of as the building blocks of digital electronics. The invention of the semiconductor-based transistor, replacing the vacuum tube for electrical switching, enabled some of mankind's greatest leaps forward in technology.

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TSMC to Face Inventory Glut

TAIPEI – Taiwan Semiconductor Manufacturing Co. (TSMC) and analysts who cover the company recognize an inventory glut in the electronics supply chain.

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3D Ultrasonic Sensor Can See With Sound

Munich-based Toposens has developed a 3D ultrasonic sensor technology that perceives its environment via the principle of echolocation – just like a bat.

Founded in 2015, Toposens has developed 3D ultrasound sensor vision that uses sound to support robust, low-cost and precise near-field 3D vision for applications such as autonomous driving, robotics and smart buildings. While existing sensor technologies can be negatively impacted by light conditions, reflections, and weather, Toposens claims its sensors use echolocation to generate robust, real-time 3D point clouds to guide autonomous systems, even in the most difficult environments.

Toposens claims it has the ability to see with sound. “Our technology is based on ultrasonic, which means that we are scanning the environment with ultrasonic soundwaves,” Andreas Just, head of marketing at Toposens, told EE Times Europe. “Our sensor sends out an ultrasonic pulse that gets reflected from objects in the detection area of the sensor and is received by the sensor. By measuring the time it takes an ultrasonic pulse to travel to the object and get reflected back to the sensor, the distance to the object can be calculated.”

CSIR-NAL, Bengaluru Developed Non Invasive Ventilator For COVID-19

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The bellow design, controllers and embedded electronics of this ventilator have all been customised to ensure price efficacy as well as meeting the requirements of the relevant industries.

According to researchers, this ventilator has a closed loop monitoring system, which can sense patient breathing effort. If present, it will assist the patient in breathing and in its absence, it will allow the prescribed amount of tidal volume into the patient lungs. This version is primarily intended to be used in small clinics, medical colleges, nursing homes, isolation wards etc., where pressurised medical air and oxygen supply pipelines are absent.

GaN, SiC Offer a Power Electronics Alternative

Improved energy efficiency and growing demand for longer battery life are prompting the power electronics community to take yet another hard look at the tradeoffs presented by wide bandgap semiconductor technology operating at higher voltages, temperatures and frequencies.

While decades-old issues around cost and yield linger, gallium nitride (GaN) and silicon carbide (SiC) wide bandgap semiconductors are looking more promising in high-power and high-temperature applications where silicon falls short.

Our deep dive into the promise and pitfalls of WBG technology examines the pros and cons of these silicon alternatives, and whether demanding applications like automotive and 5G are enough to push GaN and SiC technologies to the forefront of future chip designs.

Solving the Challenges of Driving SiC MOSFETs

Transistors are sometimes thought of as the building blocks of digital electronics. The invention of the semiconductor-based transistor, replacing the vacuum tube for electrical switching, enabled some of mankind’s greatest leaps forward in technology.

The most common transistor type in electronics is the MOSFET transistor, or metal oxide semiconductor field effect transistor. These transistors take advantage of the peculiar properties of semiconductor materials to allow small electrical current signals to control the switching of sometimes much larger current signals. One type of MOSFET is used as a switch in power electronics circuits, and it is specially optimized to withstand high voltages and pass load current with minimal energy loss.

TSMC to Face Inventory Glut Caused by US-China Trade War

TAIPEI – Taiwan Semiconductor Manufacturing Co. (TSMC) and analysts who cover the company recognize an inventory glut in the electronics supply chain.

That’s where they part ways.

TSMC is maintaining its outlook for this year, Chairman Mark Liu said at a press event Tuesday. The world’s biggest foundry has budgeted \$15 billion to \$16 billion for capital spending this year, an increase from last year’s \$14.9 billion.

“iPhone sales are still pretty good,” Liu said of Apple, TSMC’s top customer.

Moreover, Liu is optimistic that the U.S. government will relax its restrictions on chipmakers that use U.S. equipment and design tools to supply semiconductors to Huawei subsidiary HiSilicon.