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EV Group and Silicon Austria Labs extend photonics collaboration – November 16, 2023

WEEKLY NEWSLETTER -- 11.17.23
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TOP STORIES

MEMS maker Bosch developing quantum sensors
Bosch Research - Nov 16, 2023
There are significant differences between quantum sensors and conventional sensors, such as MEMS based sensors, shunt resistors, or hall sensors: the latter use macroscopic, measurable, often directly visible effects. (read more)

Optical MEMS: photonic chips for high-capacity data transmissions
Phys.org - Nov 16, 2023
With the growth in AI, 5G systems, cloud computation, and IoT, transmitters with extremely high capacities are required for data communication. Ultrafast optical modulation is an essential technology for high-capacity transmitters. (read more)

Millar to acquire Sentron to broaden its MEMS pressure sensor technology
PR Newswire - Nov 16, 2023
"Sentron's technologies and manufacturing capabilities perfectly complement our own, enabling us to offer an even broader spectrum of solutions to our clients worldwide," said Tim Daugherty, President and CEO of Millar. (read more)

MEMS fabrication: low-cost and multifunctional microprinter for ultrafast piezoelectric material printing
TechXplore - Nov 16, 2023
Researchers at the Hong Kong University of Science and Technology have developed a microprinter that can print piezoelectric films 100 times faster for the production of MEMS devices for sensors, wearables, or implantable medical devices. (read more)

Microfluidic chip with surface acoustic wave technology for cardiac biomarker detection
uFluidix - Nov 16, 2023
In the realm of cardiovascular health, timely and accurate detection of biomarkers is crucial. Acute myocardial infarction (AMI), commonly known as a heart attack, is a life-threatening condition that necessitates prompt diagnosis. (read more)

SiLC raises $25 million in additional funding to advance machine vision for AI applications
Business Wire - Nov 16, 2023
New strategic participants in the round include Hokuyo Automatic, Hankook, and ROHM Semiconductor, all industry leaders with a strategic focus on industrial, robotics, and mobility vision. (read more)

Sensors make roads safer: mobile telematics platform measures excessive speeding and phone distraction
IEEE Spectrum - Nov 15, 2023
Modern smartphones are capable of sending and receiving ultrasonic signals on their speakers and microphones, and this new sensing approach may become useful in the near future. (read more)

MEMS maker UltraSense Systems partners with BCS to develop automotive touch interface solutions
PR Newswire - Nov 15, 2023
BCS will integrate UltraSense's controllers into its latest solid-surface steering wheel switch boxes with active haptics, catering to Chinese and other global automakers. Production is set to commence this calendar year. (read more)

EV Group and Silicon Austria Labs extend photonics collaboration
Optics.org - Nov 15, 2023
"We have been immersed in a range of R&D projects spanning meta-optics, integrated photonics, and MEMS, necessitating the use of advanced lithography and bonding tools," said Dr. Mohssen Moridi, Head of Research Division Microsystems at SAL. (read more)

Inertial MEMS: quantum technique of weak value amplification may replace gyroscopes in drones
University of Rochester - Nov 15, 2023
Currently, the sensitivity and stability of a gyroscope is a trade-off between its size and weight. As drones, UAVs, and satellites become smaller and more ubiquitous, the need for ultra-compact navigation-grade gyroscopes will become critical. (read more)

Pushing the limits of gas sensing technology
Phys.org - Nov 14, 2023
Many types of selective gas sensors have been developed using various organic and inorganic materials. Some of them, such as gas chromatography sensors or electrochemical gas sensors, are highly sophisticated, yet expensive and bulky. (read more)

Evolutionary method for parameter-free MEMS structural design
Microsystems and Nanoengineering - Nov 14, 2023
The physical characteristics and performance of MEMS devices can be significantly influenced by their geometric structures. Conventional structural design requires a material design approach to incorporate a high degree of previous knowledge. (read more)

xMEMS, Creative partner to develop wireless headphones with MEMS based micro-speakers
Engadget - Nov 14, 2023
The claim is that MEMS can produce sound with higher fidelity and durability while reducing power consumption. For instance, Creative's Aurvana Ace series has frequency ranging from 5Hz to 40KHz. (read more)

Neteera raises additional $6.7 million to develop micro-radar sensor solutions
PR Newswire - Nov 13, 2023
The Israeli startup raised the first $13 million in April 2023 in a round led by Aescuvest, which led this extension as well. Foxconn Technology also joined. The company's solution eliminates the need for the removal of clothing and caregiver presence. (read more)

Ultrasonic sensors for emerging IoT applications
EDN - Nov 13, 2023
Ultrasonic sensors offer several benefits, including accurate object detection. Ultrasonic sensors have been a staple in the sensing space for several decades due to their capabilities, flexibility, and low cost. (read more)

NOTABLE NEW PATENTS AND PATENT APPLICATIONS

Title: Bulk-acoustic wave resonator
Application Number: 18/101267
Assignee: Samsung Electro-Mechanics Co., Ltd.
Abstract: A bulk-acoustic wave resonator includes a substrate; a lower electrode, disposed on the substrate, comprising a first inclined surface and a second inclined surface; and an insertion layer disposed on an edge of the lower electrode. The first inclined surface extends from an inclined surface of the insertion layer in a region disposed inside the insertion layer. The second inclined surface extends from the first inclined surface in a region inside a region of the first inclined surface.

Title: MEMS sensors package and its manufacturing method
Application Number: 18/142373
Assignee: TDK Corporation
Abstract: Disclosed herein is a MEMS sensor package that includes a substrate, an annular-shaped first dry film pattern stuck to one surface of the substrate, and a MEMS sensor chip including a tubular support and a detection part which is supported on the support so as to overlap a cavity of the support. The MEMS sensor chip is fixed to the substrate by sticking an annular mounting surface of the support to the first dry film pattern.

Title: Sensors with enhanced time division multiplexing frames
Application Number: 18/360692
Assignee: STMicroelectronics S.r.l.
Abstract: The present disclosure is directed to a device and method for generating and transmitting a TDM signal including both raw data and processed data. The device includes a sensor having a time division multiplexing (TDM) interface. The TDM interface transmits both raw data and processed data in a single TDM signal by reserving one or more slots inside a TDM frame for transmission of the processed data. The sensor also embeds additional information inside a data stream of raw data by repurposing one or more of values of the raw data as an exception code, flag, or another type of notification. The device is also enabled to transmit data, and disabled when not in use in order to conserve power.

Title: System in package with interconnected modules
Application Number: 16/247336
Assignee: Intel Corporation
Abstract: Embodiments include systems in packages (SiPs) and a method of forming the SiPs. A SiP includes a package substrate and a first modularized sub-package over the package substrate, where the first modularized sub-package includes a plurality of electrical components, a first mold layer, and a redistribution layer. The SiP also includes a stack of dies over the package substrate, where the first modularized sub-package is disposed between the stack of dies. The SiP further includes a plurality of interconnects coupled to the stack of dies, the first modularized sub-package, and the package substrate, wherein the redistribution layer of the first modularized sub-package couples the stack of dies to the package substrate with the plurality of interconnects. The SiP may enable the redistribution layer of the first modularized sub-package to couple the electrical components to the stacked dies and the package substrate without a solder interconnect.

Title: Microfluidic devices
Application Number: 17/049987
Assignee: Hewlett-Packard Development Company, L.P.
Abstract: A microfluidic device includes a microfluidic chamber fluidly coupled to an inlet port and an outlet port, a semiconductor microchip including fluid active circuitry and transistor circuitry, and a bed of solid supports positioned within the microfluidic chamber fluidly positioned between the inlet port and the outlet port. The transistor circuitry in this example provides onboard logic at the semiconductor microchip to control fluid active circuitry. The semiconductor microchip also defines a portion of the microfluidic chamber.

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