

Munich, September 8, 2022

## Press Release

### Sensors: the trailblazers of digitalization

- **Smartphones as the growth drivers of the sensor market**
- **Reliable driver-assistance systems based on sensor fusion**
- **Smart sensors at the electronica Embedded Platforms Conference**

Sensors are the key technology used by smart systems in a connected world. As the leading data supplier, they produce the raw material used in digitalization systems throughout the entire value chain in virtually all industrial segments. Leading actors in the highly innovative growth industry will explore current trends and technologies from November 15 to 18 as part of electronica 2022. These discussions will be held in part at the IIoT & Cyber Security Forum and the electronica Embedded Platforms Conference that is scheduled for November 16, 2022.

Sensors are the drilling rigs of the information society because they extract the raw material called data. No matter whether you are talking about smart cities, smart energy, smart homes, smart health and smart factories – you will always find sensors hidden beneath the term “smart.” And these sensors are becoming increasingly “smart” themselves by taking on the jobs of signal preparation and processing to go along with their normal measurement-recording responsibilities. The expectations being placed on this growth sector remain high. Analysts at Market Watch expect the global sensor market to double in coming years, jumping from \$80 billion in 2021 to \$161 billion in 2030. The members of the Association for Sensors and Measurement reported that revenues grew by 20 percent in 2021 year on year. One distinctive aspect of this industry is its high level of innovation intensity. About 11 percent of revenues flow into research and development – the highest level in Germany.

Claudia Grzelke  
PR Manager  
Phone +49 89 949-21498  
claudia.grzelke@  
messe-muenchen.de

Messe München GmbH  
Am Messesee 2  
D-81829 Munich (München)  
Germany  
messe-muenchen.de



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### **Smartphones fuel the sensor market**

Smartphones remain one of the biggest growth drivers in the sensor market. About 1.35 billion smartphones were sold around the world in 2021, according to the online German platform Statista. The high-end versions being sold today come with up to 14 sensors packed into them. Camera quality remains the most crucial unique selling proposition. The Xiaomi 12 Pro is equipped with the new 1-inch camera sensor made by Sony, a feature that vastly enhances the brilliance of nighttime photos. Samsung's 200-megapixel sensor with the world's smallest pixels offers an unbelievable level of 14-bit color depth (4 trillion colors). In addition to image sensors, you will probably find MEMS (micro-electro-mechanical systems) sensors made by Bosch Sensortec tucked into smartphones. They facilitate the rotation of the display, orientation in virtual-reality applications, navigation and many other actions.

### **Sensors used in automotive and medical technology**

The history of MEMS sensors began long before they became indispensable components in every smartphone and completely new classes of devices like fitness trackers, drones, virtual-reality headsets, smartwatches and smart sensor nodes for the Internet of Things (IoT) had come into being. They initially played key roles in such automotive applications as airbags and electronic stability control (ESP). Today's cars are equipped with more than 50 of these minute sensors, including those made by such electronica exhibitors as Analog Devices, Bosch, Hamamatsu, Infineon, Murata, Panasonic and STMicroelectronics.

Added to the mix are radars, lidar, ultrasound and "simple" cameras – it is only the interplay created by sensor fusion that enables complex driver-assistance systems extending all the way to automated driving systems (ADAS) to create a sufficiently detailed overview of the entire environment. The interior is "filmed" with the help of such things as the Icarus 3D sensor system made by Osram. It monitors the driver, noticing if he or she happens to doze off for a second or shows advanced signs of sleepiness.

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The thermal infrared sensors (thermopiles) made by Excelitas provide another form of contactless monitoring. They are used in ear and forehead thermometers to produce exceptionally precise measurements. Disposal sensors are increasingly being used in certain medical procedures as a low-cost alternative and a way to prevent infections in hospitals. The Thermometrics single-use sensor made by Amphenol Advanced Sensors continuously measures the skin temperature of newborns in incubators. In addition, Sensirion provides the makers of ventilators with MEMS-based disposal liquid-flow sensors.

### **Sensors for industrial applications**

Manufacturers in the heterogeneous market of industrial-grade sensors have little to do with the high batch numbers seen in the consumer and automotive industries. This fact of life drives up development and production costs and, thus, the prices of sensor systems. Nonetheless, a study conducted by Michaela Rothhöft of the South Westphalia University of Applied Sciences and the German Mechanical Engineering Industry Association (VDMA) found that mechanical engineering companies are increasingly interested in smart sensors. One-third of responding companies plan to store sensor data in a cloud and use digital sensor twins. The survey also found that every mechanical engineering company used an average of five sensor producers as their suppliers.

Many of these producers will attend electronica 2022. A huge number of providers are locked in a fierce battle in the area of condition monitoring, which serves as the foundation of predictive maintenance. For instance, Analog Devices supplies three-axle MEMS acceleration modules with integrated analog-to-digital converters (ADC), microcontrollers, fast Fourier transformation (FFT) and statistics. By contrast, a special processor optimized for machine learning has been placed on the new inertial sensors made by STMicroelectronics right next to the sensor on the chip. As a result, the intelligence travels from the cloud or from “on” the edge directly “into” the edge. Complex operations like pattern recognition and anomaly detection become much more efficient and productive.

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Trade fair visitors will be able to see how smart sensors can optimize their company value creation during the electronica Embedded Platforms Conference on November 16, 2022, and at the IIoT & Cyber Security Forum, among other areas. Hardware developers will not want to miss the Electrical Connectors & Measurement Technology Forum that will be held in Hall 3 on Thursday, November 17, 2022, and covers technological highlights and trends in sensors and measurement technology.

For more information about electronica 2022, please visit our [website](#). You can find this press release for download including press pictures at the [electronica newsroom](#).

#### **About electronica**

electronica is the most important international meeting place for the electronics industry. The world's leading trade fair covers the entire electronics spectrum from components to systems, applications and services. The extensive supporting program highlights the automotive, embedded, semiconductors and wireless – and networks startups with the industry. In 2018, over 81,000 visitors and more than 3,100 exhibitors attended electronica, and 8,253 people took part in electronica virtual in November 2020. The next electronica will be held from November 15 to 18, 2022 at the Messe München Exhibition Center.

#### **electronica worldwide**

In addition to electronica, Messe München organizes electronica China, electronica South China, electronica India, the SmartCards Expo and electronicAsia. The network of electronics trade fairs also includes productronica in Munich, productronica China, productronica South China, productronica India and LOPEC.

#### **Messe München**

Messe München is one of the leading exhibition organizers worldwide with more than 50 of its own trade shows for capital goods, consumer goods and new technologies. Every year, a total of over 50,000 exhibitors and around three million visitors take part in more than 200 events at the exhibition center in Munich, at the ICM – Internationales Congress Center München, the Conference Center Nord and the MOC Veranstaltungszentrum München as well as abroad. Together with its subsidiary companies, Messe München organizes trade shows in China, India, Brazil, South Africa and Turkey. With a network of associated companies in Europe, Asia, Africa and South America as well as around 70 representations abroad for over 100 countries, Messe München has a global presence.