



FOR IMMEDIATE RELEASE:

Automotive sensing: a mature yet highly dynamic market

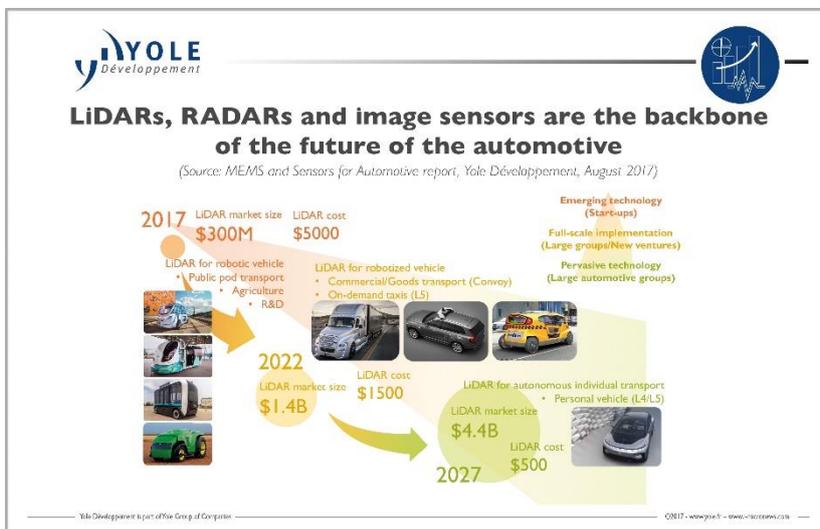
MEMS & Sensors for Automotive report – Yole Développement, August 2017

LYON, France – August 29, 2017: Despite its age and maturity, the automotive market has witnessed many unexpected developments over the past two years. And as has always been the case, safety drives the market. Automotive OEMs and suppliers are now investing in technologies to develop autonomous and electric vehicles. Automation will spur the development of imaging and detection sensors like cameras, LiDAR, and radar, while electrification will boost the design of current and thermal sensors for battery management. And because sensors are becoming a must-have, other markets are dynamic and growing too.

[Yole Développement \(Yole\)](#), part of Yole Group of Companies, presents an overview of the different sensors involved in autonomous systems with its new report [MEMS & Sensors for Automotive](#). It also describes the applications, technologies and players associated with the automotive sensors market’s impending changes. This analysis includes detailed roadmaps and market forecasts until 2022.

How will sensor technology shape the tomorrow’s automotive industry? Yole’s analysts propose you today a deep understanding of the reborn automotive sensor market.

In a global automotive market worth than US\$2.3 trillion, the little world of automotive sensors has recently been shaken up by the emergence of electric and autonomous cars.



Despite just 3% growth in the volume of cars sold expected through to 2022, Yole expects an average growth rate in sensors sales volumes above 8% over the next five years, and above 14% growth in sales value. This is thanks to the expanding integration of high value sensing modules like RADAR, imaging and LiDAR. The current automotive sensing market groups MEMS and classic active sensors such

as pressure, TPMS¹, chemical, inertial, magnetic, ultrasonic, imaging, RADAR and LiDAR. *“This market is worth US\$11 billion in 2016 and is expected to reach US\$23 billion by 2022”*, announces **Guillaume Girardin, Technology & Market Analyst at Yole**. *“This is mainly due to the boom in imaging, RADAR and LiDAR sensors, which will respectively be worth US\$7.7 billion, US\$6.2 billion and US\$1.4 billion by 2022,”* he adds.

Among classical sensors like pressure, chemical and magnetic sensors, the impact of electric vehicles will remain small in the short term. However, the advent of electrical vehicles will greatly change the amount and the distribution of pressure and magnetic sensors within the car in the longer term. More electric cars will mean fewer pressure sensors and a surge in magnetic sensors for battery monitoring and various positioning and detection of moving pieces. Finally, the automotive world is experiencing one of the fastest-changing eras in its evolution ever. Sensor suppliers are now engaged in a race where they need to be prepared for the golden age of the automotive world.

Among all sensing technologies located in the car, three main sensors will drastically change the landscape: imaging, RADAR and LiDAR sensors.

Imaging sensors were initially mounted for ADAS² purposes in high-end vehicles, with deep learning image analysis techniques promoting early adoption. It is now a well-established fact that vision-based AEB³ is possible and saves lives. Adoption of forward ADAS cameras will therefore accelerate.

Growth of imaging for automotive is also being fueled by the park assist application, and 360° surround view camera volumes are skyrocketing. While it is becoming mandatory in the US to have a rear view camera, that uptake is dwarfed by 360° surround view cameras, which enable a “bird’s eye view” perspective. This trend is most beneficial to companies like Omnivision at sensor level and Panasonic and Valeo, which have become the main manufacturers of automotive cameras.

RADAR sensors, which are often wrongly seen as competitors of imaging and LiDAR sensors, are increasingly adopted in high-end vehicles. They are also diffusing into mid-price cars for blind spot detection and adaptive cruise control, pushing Level 2/3 features as a common experience.

Lastly, LiDAR remains the “Holy Grail” for most automotive players, allowing 3D sensing of the environment. In this report Yole’ analysts highlight the different potential usages of this technology, which will transform the transportation industry completely.

¹ TPMS : Tire Pressure Monitoring Systems

² ADAS : Advanced Driver Assistance System

³ AEB : Autonomous Emergency Braking

“We expect tremendous growth of the LiDAR market within the next five years, from being worth US\$300 million in 2017 to US\$4.4 billion by 2022,” details Guillaume Girardin from Yole. LiDAR is expected to be a key technology, but sensing redundancy will still be the backbone of the automotive world where security remains the golden rule.

The MEMS & Sensors for automotive report represents the best of Yole’s automotive sensor industry and imaging sector knowledge. Yole regularly participates in industry conferences and tradeshows worldwide, and maintains close relations with market leaders. During the next months, Yole’s analysts will be part of the following conferences:

- [Inertial Sensors and Systems \(ISS\) 2017](#) (Sep. 19-20 - Karlsruhe, Germany)
"High End Inertial Systems Market Overview" on September 20 at 4:05 PM by **Guillaume Girardin, MEMS & Sensors Analyst, Yole Développement**
- [Auto Sens](#) (Sep. 19-21 - Brussels, Belgium)
"Application, market and technology status of the automotive lidar" on September 20 at 11:20 AM by **Pierre Cambou, Activity Leader, Imaging & Sensors, Yole Développement**
- [SEMI European MEMS & Sensors Summit 2017](#) (Sep. 20-22 – Grenoble, France)
“MEMS and Sensors, the New Deal ! “ on September 21st, at 9:00 AM by **Dr. Eric Mounier, Senior analyst at Yole Développement.**

To get more information about these conferences and plan meetings with Yole’s analysts, please contact Julie Robert (Robert@yole.fr).

A detailed description of the [MEMS & Sensors for Auto report](#) is available on i-micronews.com, [MEMS & Sensors reports section](#).



About **MEMS & Sensors for Automotive** report:

How will sensor technology shape the cars of the future? We are only at the very beginning of a bright future for sensor providers – be prepared for the golden age of the automotive sensor industry. ...

Produced by Yole Développement (Yole) part of Yole Group of Companies.

▪ Companies cited in the report:

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As a Technology and Market Analyst, **Emeric Celier** is member of the MEMS and Sensor business unit at Yole Développement, the “More than Moore” market research and strategy consulting company. Thanks to his technical expertise in the semiconductor field, Emeric contributes daily to the development of MEMS and Sensor activities. He does technology and strategic scouting and produces market and technology reports and custom consulting projects. He graduated from Phelma in Grenoble, France with a specialization in Physics Nanoscience and also studied Management Innovation and Technology at INPG in Grenoble, France.

Guillaume Girardin works as a Market and Technology Analyst for MEMS devices and technologies at Yole Développement, the “More than Moore” market research and strategy consulting company. Guillaume holds a Ph.D. in Physics and Nanotechnology from Claude Bernard University Lyon I and a M.Sc. in Technology and Innovation Management from EM Lyon School of Business.

Dr. Eric Mounier has a PhD in microelectronics from the INPG in Grenoble. He previously worked at CEA LETI’s R&D lab in Grenoble, France, in the marketing dept. In 1998 he cofounded Yole Développement, a market research company based in France. At Yole Développement, Dr. Eric Mounier is in charge of market analysis for MEMS and Sensors, visible and IR imagers including CMOS image sensors and microbolometers, semiconductors, printed electronics and photonics, including silicon photonics. He has contributed to more than 200 marketing and technological analyses and 100 reports. Eric is also an expert at the Observatoire des Micro et Nanotechnologies (OMNT) for Optics.



About Yole Développement – www.yole.fr

Founded in 1998, Yole Développement has grown to become a group of companies providing marketing, technology and strategy consulting, media and corporate finance services. With a strong focus on emerging applications using silicon and/or micro manufacturing, the Yole Développement group has expanded to include more than 50 collaborators worldwide covering MEMS,

Compound Semiconductors, RF Electronics, Solid-state lighting, Displays, Image Sensors, Optoelectronics, Microfluidics & Medical, Advanced Packaging, Manufacturing, Nanomaterials, Power Electronics and Batteries & Energy Management.

The “More than Moore” company Yole, along with its partners System Plus Consulting, PISEO, Blumorpho and KnowMade, support industrial companies, investors and R&D organizations worldwide to help them understand markets and follow technology trends to grow their business.

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