Sensor technologies are mature for autonomous driving application

LYON, France – January 15, 2016: Autonomous driving is arguably the most exciting development in the industry today. Indeed, according to the latest analysis from Yole Développement (Yole), entitled Sensors and Data Management for Autonomous Vehicles report 2015 (October 2015 edition), the automotive market segment is the next target of the consumer electronic players. Currently the most advanced commercial car with autonomous features embeds about 17 sensors with two main solutions: ultrasonic sensors and cameras for surround. And by 2030, Yole anticipates more than 29 sensors...

A majority of automotive industry players are currently developing sensor based solutions to increase vehicle safety in high and low speed zones. These systems, called ADAS¹ use a combination of advanced sensors mixed with actuators, control units and integrating software. These systems enable the driver and his car to monitor and respond to their surroundings. Some ADAS are already available. It includes: lane-keeping and warning systems, adaptive cruise control, back-up alerts and parking assistance. And many others are still under development.

Under this context, Yole’s analysts propose a comprehensive technology & market survey dedicated to the technologies for autonomous driving. According to Yole’s experts, autonomous driving has a long way to go. “Sensors for ADAS are now rather mature, except LIDAR and dead reckoning, however, some of the technical blocks needed to achieve self-driving like ECU, software, data management are not mature enough to enter the current market”, comments Dr Guillaume Girardin, Technology & Market Analyst at Yole. And he adds: “The technology will quickly evolve and serve the autonomous vehicle trend”.

The autonomous vehicle report from Yole provides a deep understanding of sensors and data management for autonomous

¹ ADAS: Advanced Driver Assist Systems
vehicles including market metrics, ASP\(^2\) analysis and expected evolution. The analysts describe the applications for key existing markets and promising emerging ones; they also analyzed the major technology trends, the value chain, its infrastructure and the players. What are the major drivers? What will the market look like in 2030? Who will be the winners...? Yole’s report details the insight of the automotive driving industry.

Sensor technologies are mature, but embedded data processing and management are still under construction, with emerging players like Mobileye, nVidia, and Kalray providing advanced ECU challenging the established players like Toshiba or Infineon. Yole’s analysts underline the related technical choices made by the companies, including ultrasonic sensors, short-range radar, long-range radar, LIDAR, and dead reckoning sensors, along with the associated data management. Future cars will slowly evolve from traditional mechanical, fuel-powered, and high-powered electronic vehicles into electrical-powered, ultra-sensitive machines that can anticipate many critical situations.

The overall goal is to replace the last remaining cause of driving errors: human beings.

“Yes, the automotive market holds great promise” confirms Yole, the “More than Moore” market research and strategy consulting company.

“But who will profit?”

The market value for sensors in autonomous vehicles is likely to grow rapidly, but a strong focus on computing and software is expected in the coming years, with more powerful ECUs and sensor fusion for improved reliability and efficiency. At Yole, analysts believe that sooner or later the value will flow from sensors to ECU and software, leading to the emergence of new specialized players who will take a slice of the pie.

A detailed description of this report is available on i-micronews.com website, MEMS & Sensors reports section.

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2 ASP : Average Selling Price
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About Sensors & Data Management for Autonomous Vehicles report:
_Beyond the hype and tumult, sensor technology has ushered in one of the car industry’s biggest evolutions..._
Rates: Euros 5,990.00 (Full report - Multi user license). For special offers and the price in dollars, please contact David Jourdan (Phone: +33 4 72 83 01 90).

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- Companies cited in the report:
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About Yole Développement
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, LED, Image Sensors, Optoelectronics, Microfluidics & Medical, Photovoltaics, Advanced Packaging, Manufacturing, Nanomaterials and Power Electronics. The group supports industrial companies, investors and R&D organizations worldwide to help them understand markets and follow technology trends to develop their business.

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