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## Automotive Testing Show '17— for our vendors

As Leo Mühendislik, we have concluded our first exhibition, in Automotive Testing Show Turkey 17' on March 1–2 in Ataşehir Silence Hotel.



Where, especially test and measurement systems for automotive testing exhibited at the show, we showcased our recent works for ADAS functions and autonomous driving. Also we presented the sensors and systems that we are distributing in Turkish market and we shared practical knowledge about the applications of these sensors and systems with our visitors.

During the event, we have had 19 meetings, where 11 of them were pre-scheduled. Most discussed topics were, outfitting currently manufacturing land vehicles with sensors to introduce semi/full autonomy, mapping system packages for land vehicles, OEM GNSS integration, conducting automotive tests such as durability and misuse

with COTS sensors and systems or with specific system development, practicality of noise measurement using Acoustic Camera system, realizing ADAS functions with fusion of sensors such as cameras and radars.

At the first day of the event, Velodyne LiDAR Europe GmbH Technical Manager Dieter Gabriel addressed the crowd with his talk: “3D LiDAR Sensor Technology to Achieve High-Level ADAS Functions and Autonomy”. Also he held pre-scheduled meetings with our customers to discuss further topics about Velodyne LiDAR’s experience in automotive industry.

As Leo Mühendislik, we will increasingly continue our encouragement to local OEM automotive manufacturers to develop projects to introduce some level of autonomy to their vehicles to keep up with fast-paced autonomous driving market happening in the world.

The sensors and systems that showcased during the event are listed below with short descriptions.

**Acoustic Camera:** Acoustic Camera term is first used and developed by the GFaI company which is based in Berlin/Germany. Acoustic camera, shortly, does sound source localization by overlaying sound intensities that measured with its directional ICP microphones on video camera feed placed at the center of the microphone array. With this approach, acoustic camera increases practicality of sound source measurement infinitively. We provide measurement services with acoustic camera systems. To get to know the system better, you may contact us and request a demo session with us.

**Autonomous Solutions Inc.:** Autonomous Solutions Inc., or ASI Robots, develops ground vehicle automation systems for mining, agriculture and automotive applications. Their product portfolio includes, steering robots, gas/break control systems, waypoint softwares and obstacle avoidance systems.

**Intech Trimble:** Intech Trimble, or Trimble Integrated Technologies, is a Trimble company. They develop UHF and license free radio modems for sending RTK corrections from reference GNSS systems to rover

GNSS receivers. Intech Trimble products are widely used in automotive testing, mapping, mining and marine industries.

**Hemisphere GNSS:** Hemisphere GNSS develops, high-precision positioning and orientation products such as reference GNSS systems, OEM GNSS receivers and dual antenna GNSS receivers.

**Mars Labs:** USA based Mars Labs develops high-speed data acquisition systems for vehicle dynamics, ride quality assessment, acoustics and shock tests. It is highly recommended for especially low-cost per channel applications.

**Mobileye:** Israel based Mobileye, enables you to detect, identify and track objects like vehicles, pedestrians, lanes, cyclists and traffic signs in real time with one camera configuration, with its powerful and proprietary image processing algorithms. Mobileye works with OEM directly but also serves after-market by outfitting vehicles with products like Mobileye 6 series to enable high-level ADAS functions. Mobileye systems can be used to develop autonomous vehicles but also can be independently used to realize ADAS functions such as AEBS and LDWS.

**Neptec Technologies:** Canada based Neptec Technologies, develops LiDAR sensors that work from long distances (e.g. 2.7 km or 4 km). Neptec products are widely used for autonomy in mine trucks, critical facility surveillance, detecting, identifying and tracking small objects like drones from long distances.

**Ono Sokki:** Japan based Ono Sokki, has a very wide range of products including sound level meters, microphones, accelerometers, laser doppler vibrometers, torque transducers, rotary encoders and GPS speedometers. Along with all these products, Ono Sokki also develops data acquisition systems to collect data from these sources.

**SBG Systems:** SBG Systems develops inertial systems from miniature level to navigation level. SBG System products are widely used in Turkish market in companies like Aselsan, Roketsan, TAI, Tübitak SAGE, Tubitak Uzay. SBG Systems products have very high competitive features for land, marine and aerospace industries.

**Silicon Sensing:** British / Japan joint initiative Silicon Sensing produces high accuracy MEMS sensors. These sensors are used in almost every above average INS systems in the market. Where OEM

integration or system development needed, as Leo Mühendislik we can offer end-to-end solutions for your application, with Silicon Sensing sensors.

**Smart Micro:** Germany based Smart Micro, manufactures automotive radars, traffic radars and radar altimeters. OEMs generally provides their radar solutions from Tier 1 companies, therefore they are generally having difficulty to test individual products. We provide radar sensors, integration services and expert technical support for your sensor trials.

**Showa-Sokki:** Japan based Showa-Sokki, is a leading strain gage manufacturer. Showa-Sokki produces a wide range of products including strain gages, load cells, torque, pressure, displacement, acceleration transducers.

**Velodyne LiDAR:** The biggest players in autonomous driving market such as Google, Ford, Volvo, Navya uses Velodyne LiDAR sensors as primary sensor in their autonomous system development efforts. Velodyne LiDAR addresses a lot of industries from automotive to aerial mapping, with its 360 degree sensors with varying data collection rates from 300000 points/sec to 2.2 million points/sec. Leo Mühendislik, develops LiDAR integrated systems for various industries also spends major efforts for autonomous system and paradigm development.

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We will be attending IDEF 2017 (International Defence Industry Fair) as our next show. We are working towards completion of a LiDAR integrated system to showcase at the show. We thank all the visitor who stopped by at our booth in ATS 2017.

