Thursday, May 18, 2017

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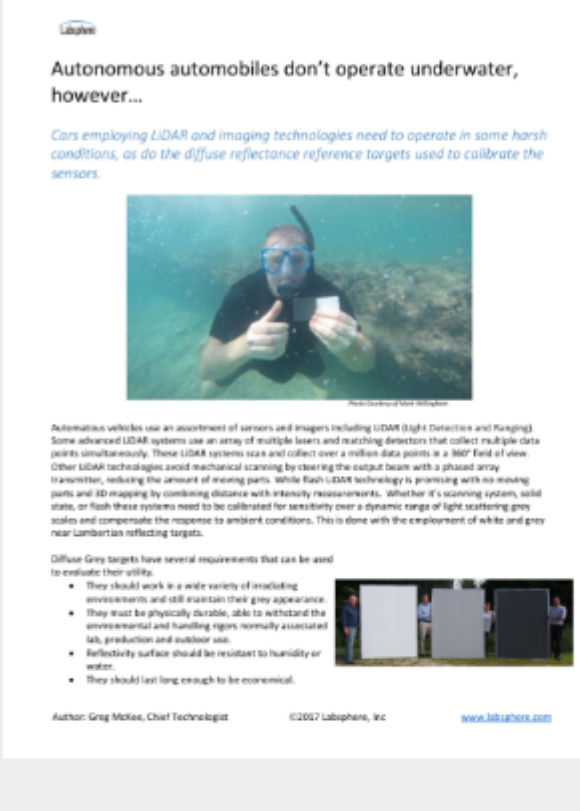

Autonomous automobiles don't operate underwater, however...

Cars employing LiDAR and imaging technologies need to operate in some harsh conditions, as do the diffuse reflectance reference targets used to calibrate the sensors.

Autonomous vehicles use an assortment of sensors and imagers including LiDAR (Light Detection and Ranging). Some advanced LiDAR systems use an array of multiple lasers and matching detectors that collect multiple data points simultaneously. These LiDAR systems scan and collect over a million data points in a 360° field of view. Other LiDAR technologies avoid mechanical scanning by steering the output beam with a phased array transmitter, reducing the amount of moving parts. While flash LiDAR technology is promising with no moving parts and 3D mapping by combining distance with intensity measurements. Whether it's scanning system, solid state, or flash these systems need to be calibrated for sensitivity over a dynamic range of light scattering grey scales and compensate the response to ambient conditions. This is done with the employment of white and grey near Lambertian reflecting targets.

Diffuse Grey targets have several requirements that can be used to evaluate their utility.

- They should work in a wide variety of irradiating environments and still maintain their grey appearance.
- They must be physically durable, able to withstand the environmental and handling rigors normally associated lab, production and outdoor use.
- Reflectivity surface should be resistant to humidity or water.
- They should last long enough to be economical.

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