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CES 2021: Mobileye Innovation Will Bring AVs to Everyone, Everywhere

Progress Includes Automated Crowdsourced Mapping, New Lidar SoC, Software-Defined Radar and AV Test Vehicles in Four New Countries

NEWS HIGHLIGHTS

- Automated, worldwide autonomous vehicle (AV) mapping capability allows Mobileye to expand its AV test fleets; new vehicles expected in Detroit, Tokyo, Shanghai, Paris and (pending regulation) New York City early this year.
- Intel brings its XPU strategy, expertise and manufacturing capability in silicon photonics to develop a lidar system-on-chip (SoC) for Mobileye use in AVs starting in 2025.
- Mobileye plans a software-defined radar customized to autonomous vehicles.
- Mobileye reveals that cars using its existing technology have mapped nearly 1 billion kilometers globally, with more than 8 million kilometers mapped daily.

JERUSALEM--(BUSINESS WIRE)-- Mobileye, an Intel Company, today previewed the strategy and technology that will enable autonomous vehicles (AV) to fulfill their lifesaving promise globally. During two sessions at this week's Consumer Electronics Show, Mobileye president and chief executive officer Amnon Shashua will explain how Mobileye is set up to win globally in the AV industry.

This press release features multimedia. View the full release here: https://www.businesswire.com/news/home/20210111005334/en/

During his annual "Under the Hood" address at the all-virtual CES 2021, Prof. Amnon Shashua, president and CEO of Mobileye, shows off a new silicon photonics lidar SoC that will deliver frequency-modulated continuous wave (FMCW) lidar on a chip for autonomous vehicles beginning in 2025. (Credit: Mobileye, an Intel Company)

"The backing of Intel and the trinity of our approach means that Mobileye can scale at an unprecedented manner," Shashua said. "From the beginning, every part of our plan aims for rapid geographic and economic scalability – and today's news shows how our innovations are enabling us to execute on that strategy."

The Mobileye Trinity

In describing the trinity of the Mobileye approach, Shashua will explain the importance of delivering a sensing solution that is orders of magnitude more capable than human drivers. He will describe how Mobileye's technology – including Road Experience Management™ (REM™) mapping technology, rules-based Responsibility-Sensitive Safety (RSS) driving policy and two separate, truly redundant sensing subsystems based on world-leading

camera, radar and lidar technology – combine to deliver such a solution.

More: Intel at CES 2021 (Press Kit) | Mobileye News | Autonomous Driving News

Mobileye's approach solves the scale challenge from both a technology and business perspective. Getting the technology down to an affordable cost in line with the market for future AVs is crucial to enabling global proliferation. Mobileye's solution starts with the inexpensive camera as the primary sensor combined with a secondary, truly redundant sensing system enabling safety-critical performance that is at least three orders of magnitude safer than humans. Using True Redundancy™, Mobileye can validate this level of performance faster and at a lower cost than those who are doing so with a fused system.

New Radar and Lidar Technology

Shashua explained that the company envisions a future with AVs achieving enhanced radio- and light-based detection-and-ranging sensing, which is key to further raising the bar for road safety. Mobileye and Intel are introducing solutions that will innovatively deliver such advanced capabilities in radar and lidar for AVs while optimizing computing- and cost-efficiencies.

As described in Shashua's "Under the Hood" session, Mobileye's software-defined imaging radar technology with 2304 channels, 100DB dynamic range and 40 DBc side lobe level that together enable the radar to build a sensing state good enough for driving policy supporting autonomous driving. With fully digital and state-of-the-art signal processing, different scanning modes, rich raw detections and multi-frame tracking, Mobileye's software-defined imaging radar represents a paradigm shift in architecture to enable a significant leap in performance.

Shashua also will explain how Intel's specialized silicon photonics fab is able to put active and passive laser elements on a silicon chip. "This is really game-changing," Shashua said of the lidar SoC expected in 2025. "And we call this a photonic integrated circuit, PIC. It has 184 vertical lines, and then those vertical lines are moved through optics. Having fabs that are able to do that, that's very, very rare. So this gives Intel a significant advantage in building these lidars."

Worldwide Maps Bring AVs Everywhere

In Monday's session, Shashua will explain the thinking behind Mobileye's crowdsourced mapping technology. Mobileye's unique and unprecedented technology can now map the world automatically with nearly 8 million kilometers tracked daily and nearly 1 billion kilometers completed to date. This mapping process differs from other approaches in its attention to semantic details that are crucial to an AV's ability to understand and contextualize its environment.

For AVs to realize their life-saving promise, they must proliferate widely and be able to drive almost everywhere. Mobileye's automated map-making process uses technology deployed on nearly 1 million vehicles already equipped with Mobileye advanced driver-assistance technology.

To demonstrate the scalable benefits of these automatic AV maps, Mobileye will start driving

its AVs in four new countries without sending specialized engineers to those new locations. The company will instead send vehicles to local teams that support Mobileye customers. After appropriate training for safety, those vehicles will be able to drive. This approach was used in 2020 to enable AVs to start driving in Munich and Detroit within a few days.

Find out More

Watch Mobileye's day one press conference at 10 a.m. PST Monday, Jan. 11, and the deeper technology session at 10 a.m. PST Tuesday, Jan. 12. Both will be broadcast on the Intel Newsroom.

About Intel

Intel (Nasdaq: INTC) is an industry leader, creating world-changing technology that enables global progress and enriches lives. Inspired by Moore's Law, we continuously work to advance the design and manufacturing of semiconductors to help address our customers' greatest challenges. By embedding intelligence in the cloud, network, edge and every kind of computing device, we unleash the potential of data to transform business and society for the better. To learn more about Intel's innovations, go to newsroom.intel.com and intel.com.

About Mobileye

Mobileye is the global leader in the development of computer vision and machine learning, data analysis, localization and mapping for Advanced Driver Assistance Systems and autonomous driving. Mobileye's technology helps keep passengers safer on the roads, reduces the risks of traffic accidents, saves lives and has the potential to revolutionize the driving experience by enabling autonomous driving. Mobileye's proprietary software algorithms and EyeQ® chips perform detailed interpretations of the visual field in order to anticipate possible collisions with other vehicles, pedestrians, cyclists, animals, debris and other obstacles. Mobileye's products are also able to detect roadway markings such as lanes, road boundaries, barriers and similar items; identify and read traffic signs, directional signs and traffic lights; create a RoadBook™ of localized drivable paths and visual landmarks using REM™; and provide mapping for autonomous driving.

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