

## Shopping centre

**Rory Jackson** details some of the latest unmanned systems that consumers and businesses were able to feast their eyes on at this year's show

**Velodyne debuted a range of** new Lidar products designed to offer improved perception for vehicle autonomy and driver assistance systems.

The Alpha Puck can generate point measurements at up to 300 m away (the longest range yet among the company's products), across a 360° horizontal FOV and a 40° vertical FOV. Measurements from the 905 nm lasers are generated with a resolution of 0.2 x 0.1°.

A new robotic manufacturing process was used at Velodyne's factory, and new proprietary materials used in the Alpha Puck were developed in conjunction with the system, the company said.

Velodyne also unveiled its new VelaDome sensor. Unlike its typical Puck sensors, which have a 360° horizontal FOV, the VelaDome takes measurements across a 180 x 180° FOV.

The point-generation capabilities of Lidar systems are typically limited by how many pulses per second their laser diodes can emit. Also, the need to cover as broad a FOV as possible typically requires alterations to the paths of each pulse, which spread the boundaries of the point cloud but sacrifice its overall density.

By reducing the horizontal FOV to 180°, the VelaDome can achieve a higher point cloud density than other Lidar systems, at ranges as close as 0.1 m from the dome-shaped sensor. That can enable closer measurements (and thus greater safety) when self-driving vehicles detect cyclists or pedestrians.

