

News & Analysis

Quad Cam Vision for Robocars Comes to CES

Combines stereoscopic IR & day cameras for all weather conditions

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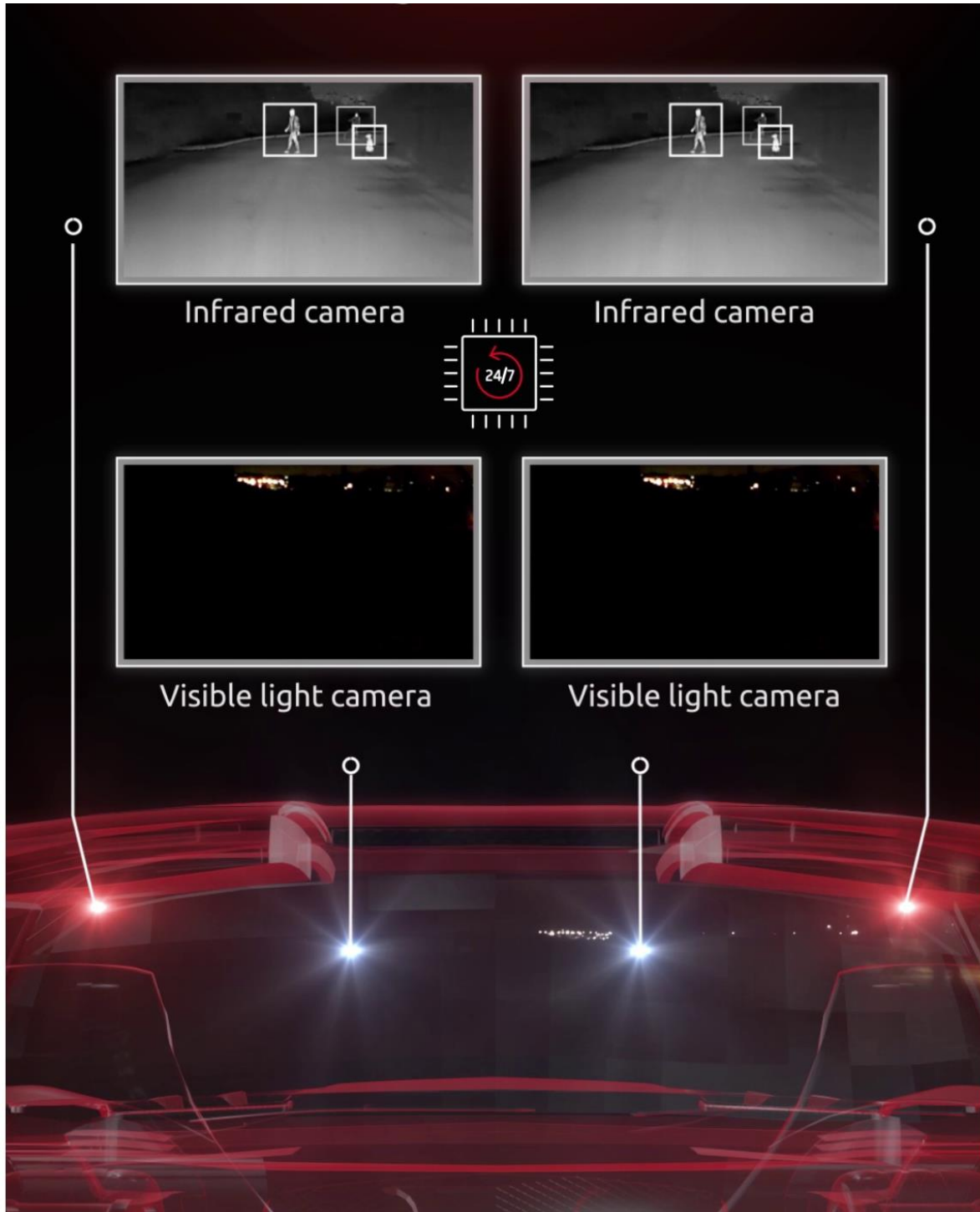
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MADISON, Wis. — Foresight Automotive (Ness Ziona, Israel) is coming to the Consumer Electronics Show next week to demonstrate the company's new automotive vehicle vision technology, called QuadSight, consisting of four cameras including two pairs of stereoscopic infrared and day cameras.

Foresight's quad cam unit, designed to fuse data coming from both infrared (night vision) and day cameras, does "automatic calibration to present near-100 percent accurate obstacle detection, under any weather, lighting conditions," Doron Cohadier, Foresight's vice president of development, told us. He claimed, "We are taking the vision technology truly to the next level."

• • QUADSIGHT™ • •

Night Condition



Foresight combines two pairs of stereoscopic IR and day cameras (Source: Foresight)

The combination of infrared and day cameras is an intriguing concept. Phil Magney, founder and principal of VSI Labs, told us, “I cannot think of anyone else that has deployed this approach.”

Magney explained that infrared, known as a thermal camera, is typically used for night vision. “Thermal cameras need an infrared emitter which casts an invisible light that captures images that could not normally be seen with conventional cameras,” he noted. Magney suspected Foresight’s QuadSight “may have a cost advantage over a fusion systems that couples radar or lidar with the camera.”

For both ADAS and highly automated vehicles, Magney said, “You typically need both ‘ranging’ and ‘imaging.’ Foresight’s QuadSight solutions purport to do this with their two types of sensors.”

During a phone interview with EE Times, Cohadier pointed out that autonomous vehicles face two challenges. One is a lack of sensors that work in heavy rain or storm. “ADAS and autonomous vehicles, after all, are only as good as their sensors,” he said. Another challenge is consumer adoption. “Consumers won’t accept it until carmakers can promise a 100 percent safe journey.”

Foresight’s goal is to offer automated vehicles “the best vision layer,” Cohadier said.

Object detection, not classification

Foresight is no stranger to advanced vision algorithms and stereo-vision systems. The company logged two decades of experience in surveillance systems before getting into the automotive market, Cohadier told us.

Foresight’s special image processing algorithms, with which it claims can deliver “near-100 percent obstacle detection zero false alerts,” have their roots in the company’s surveillance expertise.

Thus far, Foresight has focused on achieving almost perfect “obstacle detection” with its vision algorithms, but not “object classification.” Cohadier said, “Our strategy has always been to make image detection to perfection first — with no holes.” The company, however, is working to add “classification” now, he added, by using deep learning, so that its final Quadsight system, scheduled for rollout in late 2019, will come with that capability.