What is BASELABS Create Embedded?
BASELABS Create Embedded® is a software solution for the fast and efficient development of data fusion systems for automated driving functions in embedded systems. The tool contains fusion algorithms that combine data from radar, camera and LiDAR sensors. The resulting object fusion provides a uniform object list of the vehicle environment and serves as an input for path planning and decision algorithms. BASELABS Create Embedded makes it possible for the first time to take over the developed sensor data fusion directly for production ECUs.

Overview of Advantages
> Consistent solution for all development stages
> Ready for series production
> Generated source code compliant with Automotive SPICE
> Fully documented development process: consistent, traceable and verified
> Complete test coverage and code verification
> Optimized workflow with vADASdeveloper from Vector and the middleware Robot Operating System (ROS)
> Fully compatible with AUTOSAR Classic and Adaptive

Application Areas and Driving Functions
Best support for the development of all autonomy levels:
> SAE Level 0-3: Autonomous Emergency Braking (AEB), Adaptive Cruise Control (ACC), Forward Collision Warning
> SAE Level 3-5: Object fusion as part of a diverse redundant safety architecture, e.g. ASIL D decomposition

The data fusion combines detections and objects from all configured sensors to provide a unified object list of the vehicle's surroundings. For each object, quantities like position, velocity and classification are determined. The data fusion eliminates individual sensor weaknesses like limited lateral or longitudinal accuracy, limited detectability or false positives.
Data Fusion Library for Embedded Systems

The integrated data fusion library contains algorithms to build custom object fusion systems such as:

- Numerically stable Kalman filters
- Data association methods
- Sensor models
- Existence probability handling
- Track management algorithms

The C source code of the library is fully accessible and ready for embedded platforms:

- Compatible with common embedded platforms such as Aurix 2G, Renesas RH850 and ARM Cortex-R52
- Low CPU load and memory consumption
- Customizable and extensible
- Readable code comparable to manual implementation
- MISRA-C:2012 compliant
- No dependencies to external libraries

More information:
www.vector.com/create-embedded
www.baselabs.de/create-embedded

* A product of BASELABS GmbH. Vector distributes the software as part of its ADAS product portfolio.