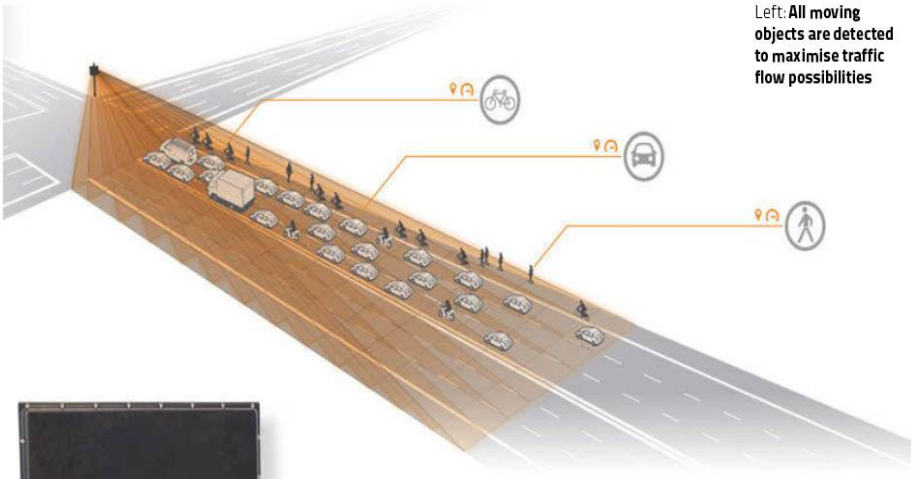
Next generation sensors

The requirements for traffic management sensors are constantly changing. In the past it was enough to offer a reliable stop bar detection, but expectations today have since risen in many respects. Authorities are focused on reducing cost and searching for ways to satisfy the needs of a smart city. Increasing safety, especially for vulnerable road users, reducing carbon emissions, as well as collecting and sharing data are the most important topics these days.

Product revision

In order to satisfy these growing demands, smartmicro fundamentally revised its premium product line. The sensor will be available with two different hardware options. The radar only version TRUGRD and the version with an integrated camera, the TRUGRD Stream. This latter option provides traffic operators with a live video stream from the site to the traffic operation centre. With this future-proof platform combining radar and video, detection accuracy is able to improve significantly.

While the footprint is not changed in comparison to the predecessor model UMRR-0C, the technical capabilities are highly improved. The sensor comes with 4D/UHD+ resolution. It precisely measures the position, lane and speed vector, as well as the elevation of the objects in the field of view. Thanks to completely new digital signal processing and antenna design, the performance in dense traffic scenarios is further improved. By detecting all moving and stopped objects including pedestrians and bicycles, it is now possible to maximise traffic flow. An optimized surface treatment of the sensor components allows deployments in environmentally challenging conditions like at the seaside.



Left: **All moving objects are detected to maximise traffic flow possibilities**

Linux is the operating system of the sensor. Therefore, the platform is easily accessible for various kinds of third-party apps. For example, all data the sensor provides can be processed according to individual needs. Through the availability of a communication library, the efforts to integrate the communication between sensor and any subsystem can be minimized. This saves engineering efforts on both sides.

Need to know

The revised premium product line from smartmicro

- Two hardware options are TRUGRD (radar only) and TRUGRD Stream (includes an integrated camera)
- Interference mitigation algorithm alerts if other sensors receive interferences

Diagnostic functions

New diagnostic functions are introduced. When the sensor detects heavy rain or a snowstorm that may affect the performance significantly, an error message will be generated, and the device will switch into fail-safe mode to prevent malfunction. This so-called 'sensor blind' function provides a message that the sensor performance is impaired to make the user aware that the function might be restricted momentarily.

Another feature is the detection of interference. The feature sends a warning if interferences through other sensors occur. With the help of the smartmicro interference mitigation algorithm, the sensor can still provide a stable performance – this results in a radar, that is barely disturbed by other interferences on the same frequency band.

All-in-one solution

A modern sensor can deliver an all-in-one traffic management solution that provides big data for smart cities including V2I communication. A single device from smartmicro, for example, provides all data a traffic manager could dream of: it precisely measures the position, lane and speed vector as well as the elevation of the objects in the field of view – on all lanes. The radar can be used simultaneously for adaptive intersection control, as well as collecting statistical data including counting and object classification. smartmicro radar sensors can even be used for various kind of enforcement applications.

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