uRAD – Tracking Software

Description

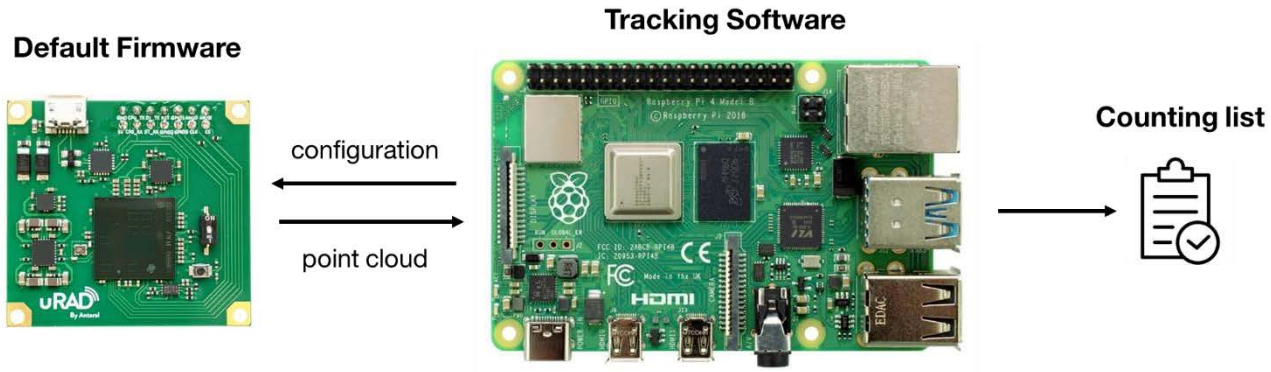
The Tracking Software consists of a Python program specifically designed for counting vehicles, measure their velocity and identifying the type of vehicle. This software works for 60 GHz uRAD Industrial solution that works in an available frequency band all over the world which ease the certification of any product.

uRAD Industrial delivers, with the firmware by default, the point cloud. This point cloud contains information of X, Y, Z space coordinates, velocity and SNR (Signal to Noise Ratio) of everything that it is in the field of view of the radar. Therefore, the same target will be detected multiple times, according to the sampling rate, while it is in the uRAD field of view and also many objects that could not be of interest and have to be ignored, will be detected as well.

The algorithms included in the tracking software process all this massive point cloud to track over time and in real time according to distance, speed and SNR of each target and deliver a single count data, along with the **timestamp**, **velocity, lane estimation** and **type of vehicle**.

The type of target identifies, in first instance, people, regular vehicles and large trucks. Moreover, the classification can be refined to include bicycles.

This software has to be installed in the master device that configures and receive the point cloud from the radar. A typical example of a device that can be easily integrated with uRAD is a Raspberry Pi. Software configuration is minimal. It is as easy as plug and play.



License

- The purchase of the tracking software does not entail any temporary license and it is delivered as property to the customer.
- The software is valid for as many hardware units as the customer purchases.
- All software updates are included with the initial purchase.
- Software compatibility with future hardware versions is ensured.

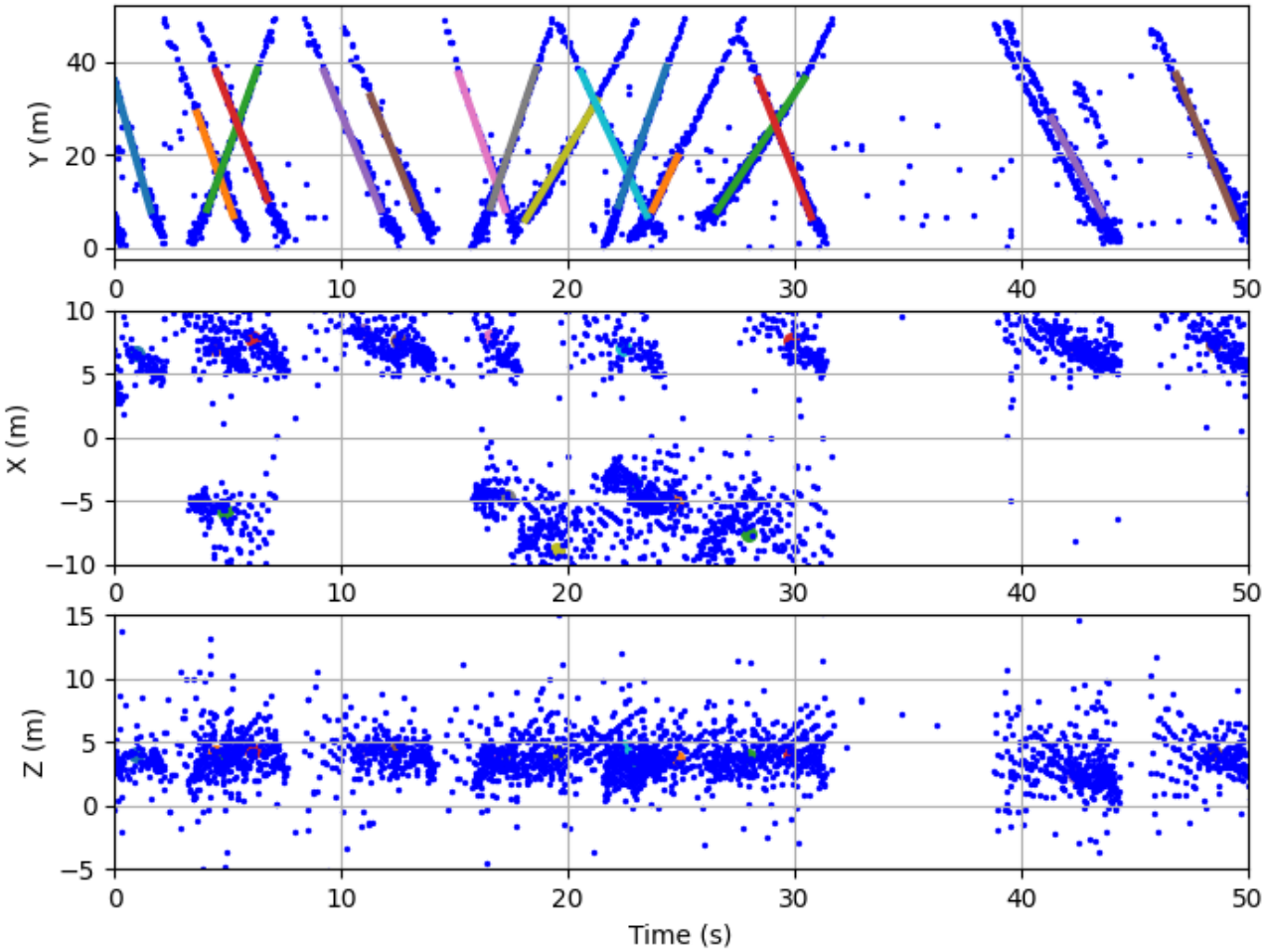
Functioning

The following image illustrates the operation of the tracking program in a scenario with four lanes with two driving directions and a central reservation in the middle.

The three plots show Y (longitudinal distance from radar to vehicle), X (horizontal distance) and Z (height), the values received in the point cloud. These points are painted in blue.

The tracking algorithm groups all samples received in real vehicles. Over the blue points, the vehicle identification made by the tracking software is painted in color lines.

Besides X,Y,Z data, the point cloud also contains velocity and SNR information that are also used for doing the tracking but, furthermore, for extracting the vehicle type.

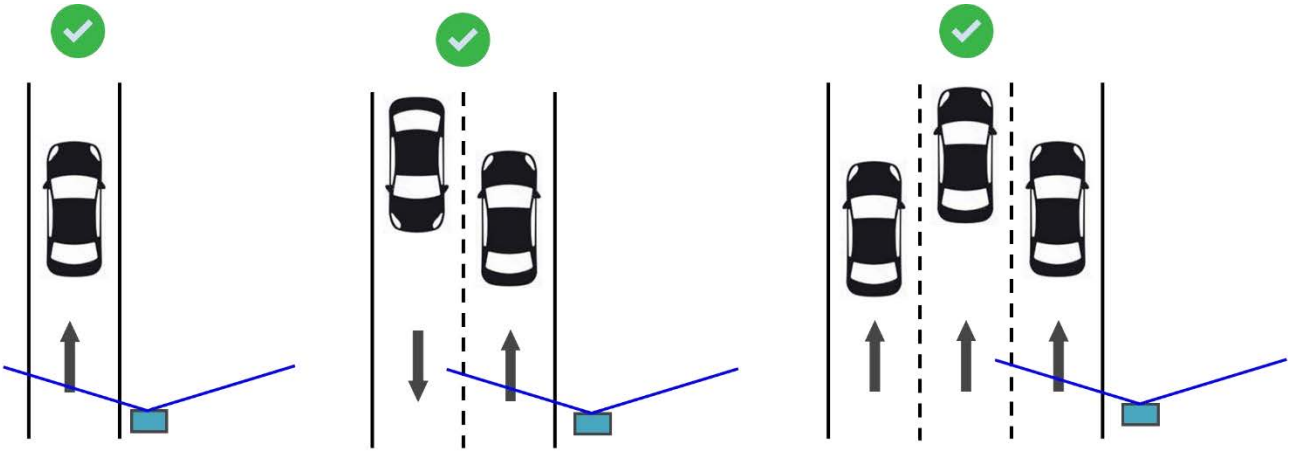


Use case

uRAD Industrial together with Tracking Software are very versatile and can be used in many counting scenarios: single lane, multiple lanes, one or two driving directions, etc. Moreover, it can be placed at a side of the road or above the road.

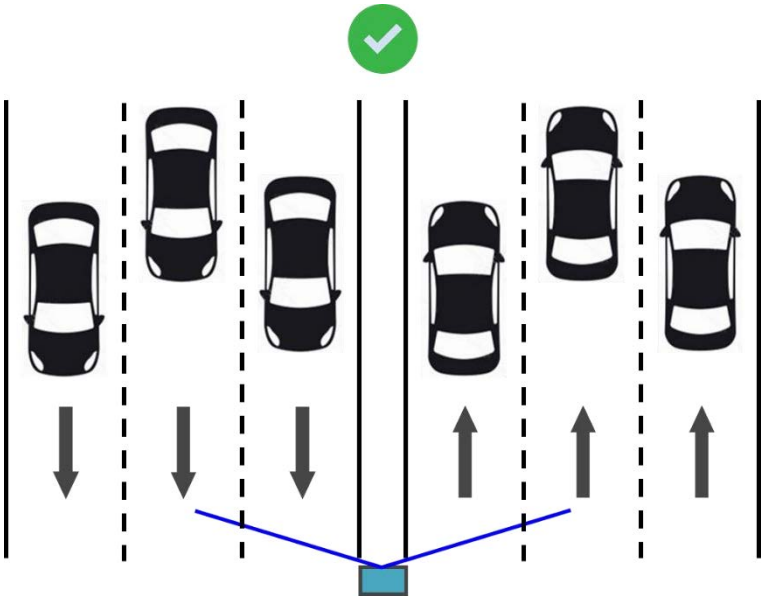
- **Placement at a side of the road**

Up to three lanes in both driving directions (depend on lane size)



- **Placement over the road**

Up to six lanes in both driving directions (depend on the lane size)



Contact us at contact@urad.es with any doubt or comment regarding our tracking software.