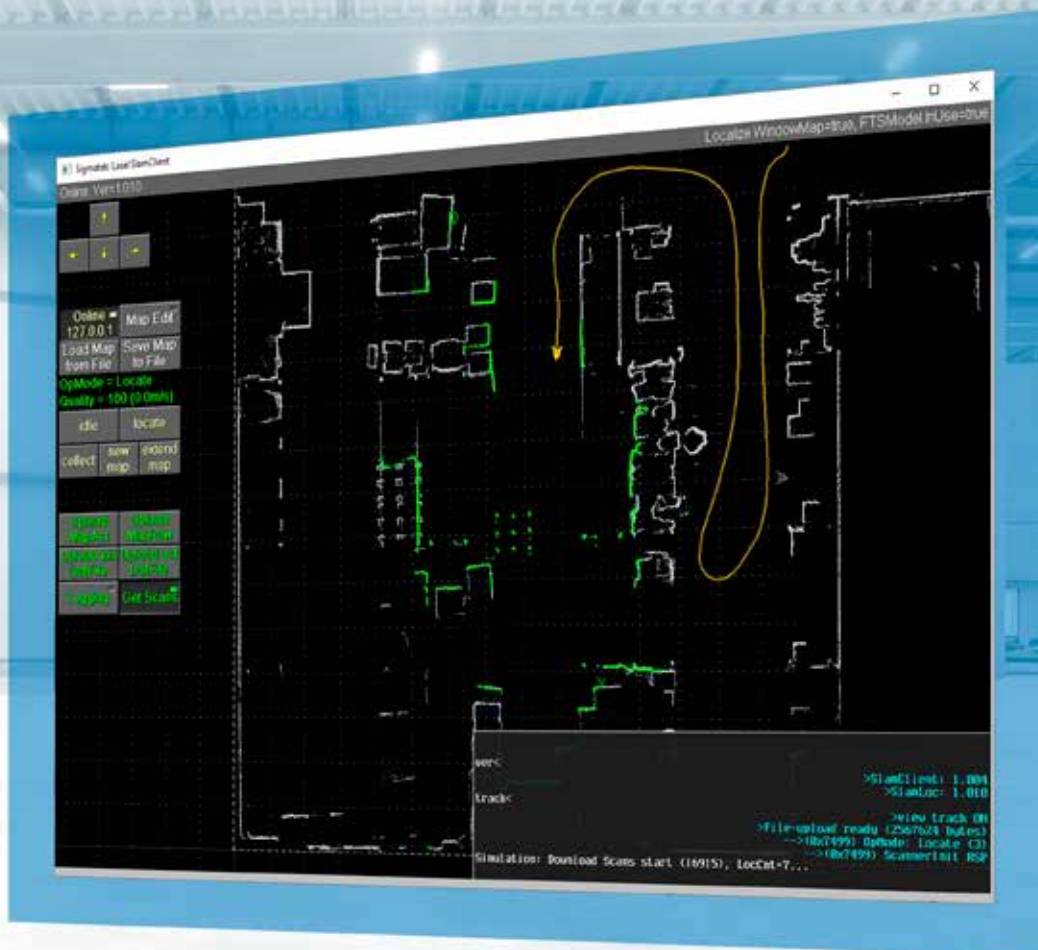


SLAM NAVIGATION FOR AGV & AMR



SLAMLOC SOFTWARE FOR AGV & AMR

SLAM-NAVIGATION IN REAL TIME

The localization software SlamLoc revolutionizes the way automated guided vehicles (AGV) and autonomous mobile robots (AMR) handle changes in their environment using contour-based navigation – independently of scanner hardware and platforms. The system is ready for operation in just a few minutes, does not need pre-installed plans and ensures uncompromisingly precise contour-based navigation.



To reach their destination precisely, AGVs and AMRs continuously check their route. For this purpose, contour-based laser navigation is increasingly being used, which does not require the installation of any artificial landmarks, since production and storage halls, as well as incoming and outgoing goods areas, are areas that are constantly changing (shelves, pallets).

In this case, the SLAM (Simultaneous Localization And Mapping) navigation method is a good choice. In the course of navigation, the AGVs and AMRs constantly compare the scanned actual situation with the environmental characteristics stored

in the map and create the map dynamically.

QUICKLY READY TO USE

With SlamLoc, SIGMATEK offers an open real-time localization software that can be used independently of the control technology, has a low demand on hardware resources and therefore does not need much power in battery-powered vehicles. SlamLoc is quickly ready for use and does not require pre-installed plans. It creates the map of the environment as a basis for route planning during the initial teaching cycle.



SlamLoc: highly precise and with a variety of clever features, such as Pocketlight Mode, Scanner Switch, Freestyle Localize, Trailer Find.

If a “foreign object” is detected during further travel, it is taken into account temporarily and is used for position determining. This allows a pose accurate to ± 10 mm and $\pm 0.1^\circ$ to be determined in real time – even for significantly modified contours – i.e. the X/Y coordinate including orientation. This is considerably more accurate as it would be possible by simply extrapolating the drive data.

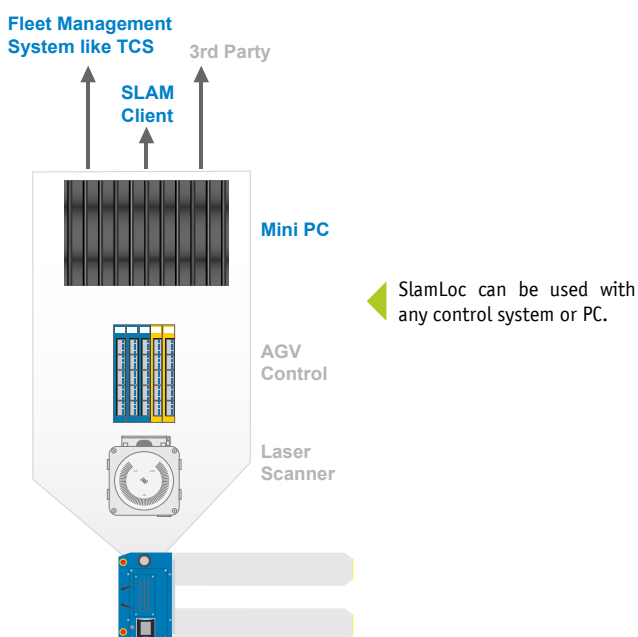
Fleet management systems can react immediately to obstacles based on the SLAM data and initiate the necessary actions.

DYNAMIC NAVIGATION

SIGMATEK SlamLoc enables uncompromisingly precise contour-based navigation even when the view of known contours is obstructed, e.g. by pallet stacks. Through real-time SLAM, exact vehicle localisation is achieved without extensive initialization when restarting. Above all, the software allows fully dynamic navigation in FCE (Frequently Changing Environments), i.e. in areas that are subject to continuous changes.

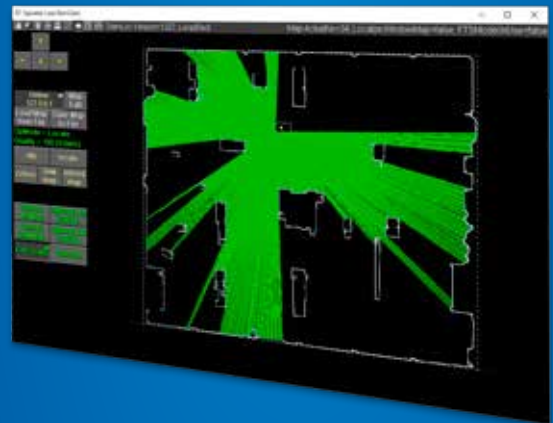
SLAMCLIENT FOR VISUALIZATION

The optional SlamClient is used for implementation and enables visualization of the actual vehicle movements and dynamic mapping, as well as its editing.



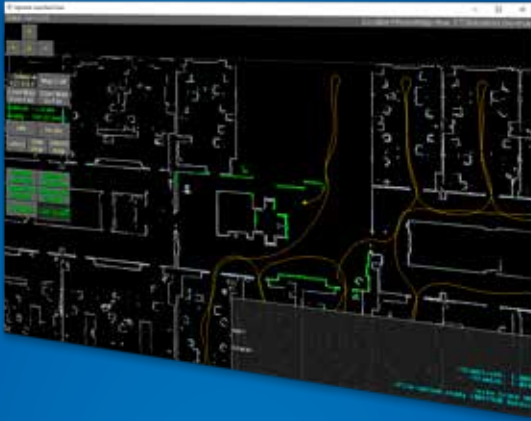
POCKETLIGHT MODE

In the so-called Pocketlight Mode, temporary, possibly moving objects slowly come into view when approached and disappear just as slowly after passing by. Normally, they are not added to the static map. By deliberately avoiding the use of familiar contours, SlamLoc allows buffer zones, goods receiving or shipping to be integrated into an AGV/AMR for the first time.



SCANNER SWITCH

Thanks to Scanner Switch, SlamLoc can switch to a different scanner during operation. If a scanner is covered – by a load, for example – it is possible to switch to another (additionally mounted) scanner without the vehicle having to stop or stand still. This saves braking and acceleration processes, which in turn ensures a longer battery life.



FREESTYLE LOCALIZE

With the function Freestyle Localize, the system can localize without a predetermined map, by scanning and analyzing the environment in real time. It therefore allows flexible navigation within the range of the scanner.



TRAILER FIND

With Trailer Find an AGV/AMR can move to an open gate in a warehouse and locate and measure the truck trailer situated there – even if it is typically located outside the predefined map. To ensure optimal loading or unloading, Freestyle Localize enables the vehicle to locate itself accurately in the trailer and act accordingly.

HOT FACTS

UNCOMPROMISINGLY PRECISE

Continuous adaptation to reality and highly accurate determination of the pose

SCANNER HARDWARE INDEPENDENT

Easy to implement and use

REAL-TIME NAVIGATION IN "FCE"

Safe route management in frequently changing environments

SLAMCLIENT

Visualization of routes and dynamic mapping

FURTHER AGV/AMR PRODUCTS

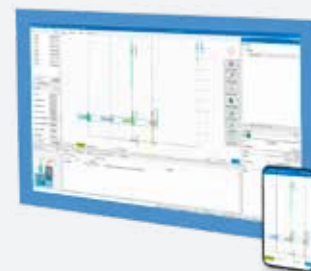
FLEXIBLE CONTROL

Fast, lean and vibration-resistant: the S-DIAS control system is ideal for automating AGVs and AMRs – safety is seamlessly integrated.



FLEET MANAGEMENT

The TCS Fleet Management System connects different AGVs and AMRs variants, coordinates transport tasks, organizes route planning at runtime and optimizes transport tasks with the integrated fleet simulation. SLAM maps can be integrated easily and directly.



www.sigmatek-automation.com