



## DLR software on police duty

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The police plan to make things tough for car thieves and burglars by stepping up their patrols. For this purpose, DLR Braunschweig has developed a new route planning software: TAG ("TourenAuswahlGenerator") assists in deploying resources efficiently, includes random factors, gives consideration to the current situation – and may as well be used in other security-relevant fields.

The Braunschweig-Wolfsburg region is plagued by a growing number of car thefts. Most of these are committed by organised criminals whose professionalism presents a great challenge to the police. Optimised patrolling is intended to prevent thefts by deterring the thieves. So far, the police have been planning their rounds without support. Now, however, DLR and the Braunschweig police have initiated a project to support officers actively in planning their itineraries. For this purpose, the Institute of Air Transport and Airport Research, a DLR domiciled at Braunschweig and Köln-Porz has developed the TAG software.

The TAG generates routes and itineraries that are optimised to match the needs of the police, the objective being to deploy staff and patrol cars as efficiently as possible. Introducing random elements is particularly important in this context because it keeps criminals from recognising patterns to which they can adapt. The system also allows for emergency call-outs, since in an emergency the police cannot wait until a patrol run is over before rushing to the scene.

### **The officers' experience is part of the plan**

The TAG route planning software meets all these requirements. Its database, which is updated by the users themselves, contains the addresses of places with a potential theft risk. Next to sites where cars have been stolen frequently before, the database also contains locations where valuable cars are often parked.

All sites are given a threat index which reflects earlier police experience. Areas where the risk of theft is high are covered more frequently than others where it is lower. Moreover, some destinations are selected from the database by a randomiser. A cluster algorithm divides these into groups, and route-planning algorithms amalgamate them into itineraries.

What the TAG really does is to generate a large number of small, optimised patrol tours. This approach permits the police to prioritise other missions against patrols. Thus, the events of the day and its emergency calls govern the timing of the patrols – another random component that makes life harder for criminals.

### **Suitable for airport use**

Beyond optimising patrol itineraries, the TAG's uses are many and varied. If, for example, users want a particular property surveyed in order to prevent burglary, all they need to do is include the relevant data in the database. Moreover, the system may be used at airports where the premises and terminals are continuously patrolled – a procedure that can be planned with the aid of the TAG. At present, the software is being discussed internally by the police, after which it will be tested on patrol service.

Scientists from one of DLR's main research areas, transport, is involved in this project, which at the same time forms part of DLR's security research, a cross departmental programme under which defence and security-related research and development activities are being planned and controlled.



**Patrol routes, computed by the TAG based on a fictitious database**



Patrol routes, computed by the TAG based on a fictitious database: No chance for offenders to identify a pattern.

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