

## Technology Request TN 07.025

On behalf of a client, the *German Technology Service* is looking for technical solutions and R&D partners in the field of:

*„Further developments / improvements on alcohol interlock systems.“*

### Description of the existing system

*(Keywords: Alcohol-interlock-system, respiratory alcohol measurement, alcohol measurement device)*

An alcohol interlock is an integrated system for vehicles that should ban drunken / primed potential drivers from starting their engine by manually measuring the breath alcohol concentration and locking the starter, if the concentration level is over a predefined limited value.

The system to improve consists of a handheld measurement device that is integrated into the interior and is connected to a control unit for data analysis respectively data storage. The system is integrated into the dashboard. So, if one enters a car with integrated alcohol interlock system the driver will be prompted to execute the process of breath alcohol measurement by using the integrated handheld device immediately before turning the key. After measuring the breath alcohol concentration the control unit decides if the driver is in the condition to drive or not. Is the concentration below the predefined limiting value the control unit will unlock the starter, is the concentration over the value the starter will stay locked and the car could not be started. The measurement processes and data validation are based upon verified techniques for defining the breath alcohol concentration. All measurement cycles will be recorded by the control unit.

First test have shown that the system is working absolutely reliable and error-free on the point of the used technique. A secondary measurement device has got the ability to decide if the released breath is an real probe of breath or an effort of manipulation by using a gas tube or similar devices.

**Main disadvantage:** *the system is not able to make an identity check. Therefore it cannot be excluded that the driver is manipulating the system by the breath of a second person – and then is able to start the car even with alcohol in his blood.*

### Needed solution and wishes to the cooperation

To get rid of this disadvantage technical attempt, procedures or (sensor-) observation systems are sought after. These systems should be able, based on the existing and used system, to check the identities of the test person and the driver at day and night and in a temperature range from -40°C to +65°C (optical, chemical, genetically tests or else). The system shall guarantee that the breath of the test person is by the person who is going to drive the car after having finished the test.

Our client is keen to cooperate with research institutions, companies and/or service providers in order to implement the requested technology in keeping with market demands. Ideally, any joint project should be concluded within a year. The perfect match could also be an application of another field of technique which is operating without mistakes to realize a quick conversion into the existing interlock system. The requested technology should be applicable to series production; an easy upgrade for systems that are already in use should be possible.

The main goal of collaboration with research institutes or companies is the enhancement of the existing system by integrating a new measurement device or by using an „Identity-Check-system“. Our client would be able to involve different technical approaches and more than one partner in a development project.