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## ICS - INTELLIGENT CRISIS COMMUNICATION - METHOD AND CONTROL DEVICE FOR HUMAN-MACHINE-ENVIRONMENT DATA COLLECTION AND DATA EXCHANGE WITH AN AUTHORITY

Verena Blunder  
*Bertrandt Ingenieurbüro GmbH*

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# ICS - INTELLIGENT CRISIS COMMUNICATION - METHOD AND CONTROL DEVICE FOR HUMAN/MACHINE/ENVIRONMENT DATA COLLECTION AND DATA EXCHANGE WITH AN AUTHORITY

## Technical task:

The idea ICS describes a method and a control device for the collection of "man/machine/environment" data and the exchange of data with an authority and the dialogue between the two with regard to reducing the spread of a hazard in general.

## Initial situation:

In the course of the current situation around Covid-19, the motor vehicle also plays a central role with regard to the spread of a transmissible hazard through this mobility. The use of mobile phone data for crisis management is certainly a possible variant for the documentation of a spreading hazard. The behaviour of a person is also decisively described by his mobility and thus also by the use of a motor vehicle.

Whether shopping trips, supply trips, trips to the doctor or to work, to relatives and acquaintances or on a short holiday, the mobile phone and the motor vehicle accompany every trip nowadays. The interface between mobile phone, motor vehicle and Internet is sufficiently described in the state of the art.

In simple terms, the approach of this idea is to use the motor vehicle as a collection point for "man/machine/environment" data and the exchange of data with an authority and to use the dialogue between the two in order to reduce the spread of a hazard in general. I.e. to sensitise and observe how a user of a motor vehicle behaves, i.e. how a "more or less conspicuous\* person", i.e. a person belonging to a risk group, moves with his motor vehicle where, how and for how long and which hotspots he unintentionally visits. In a broader sense, it is a matter of behavioural patterns, for example, where, how and how long the car was parked and under what conditions with regard to a possible risk of infection.

(\*) A driver or passenger who is conspicuous in terms of health due to sensory perception in the motor vehicle and who is not at all aware of his overall condition and of his belonging to a risk group with the potential to transmit a risk, e.g. transmission of infections, e.g. by

- frequency of sneezing, coughing, use of handkerchiefs
- deviations of average vital values, temperature, blood pressure, etc.
- image analysis, fever symptoms, skin colour, rash

## Solution:

Safety in development, production, distribution and sales with subsequent customer support is also of the highest priority in automotive production. The focus of the idea is the voluntary transfer of information from a classic evaluation of the vehicle with regard to the practiced mobility by a user. The idea of self-protection and the maintenance of healthy mobility is of the highest priority. Safety and health have a particularly high priority in the current situation.

The potentials of ICS assistance can best be illustrated with a few exemplary questions:

- Why start a trip if it is known that, for example, a hotspot with danger has developed in front of the supermarket. Number of people at risk?
- Why start a trip if there is only a very limited parking space available in the area of a "settlement". Distance?
- What is the point of driving, if I get out of the car when the car informs me that I have a conspicuous behaviour over an observation period by a recording method in the car. Getting in and/or getting out?
- What are the current regulations - if applicable at this moment. Internet publications?
- What personal protective measures are recommended. Which ones, at which places and where can I get them, if necessary?
- What are the requirements of an authority, a crisis management team or a foreign office? What do they look like and when do they apply?
- What is my state of health during a driving activity from the point of view of the vehicle and are there any differences or anomalies with regard to the ICS evaluation criteria?
- Do I possibly belong to a risk group after a planned trip?

In summary and in relation to the ICS idea this means:

The passive safety that customers buy with a brand is achieved through a variety of modern assistance systems, such as pre-crash. The safety of the user and passengers in the extended environment of this mobility, i.e. the movement pattern in an environment or traffic event under "restricted health conditions", plays a very decisive role both for the persons assigned to the motor vehicle and the persons in the environment of the traffic event, in particular passive non-travelling participants, whether they are driving or passively affected as pedestrians or passers-by.

In other words, the reverse conclusion is that a manufacturer has a responsibility, taking these aspects into account, to exert an overall influence on environmental compatibility with regard to health and safety.

The maintenance of motor vehicle mobility plays a very important role in the economy of a continent, state, country, district, town or municipality, and compliance with the requirements of local administrations plays a decisive role in this respect.

The motor vehicle is thus also actively involved in the spread of a hazard and can therefore also influence risk minimisation.

With the ICS procedure and the associated control system, the motor vehicle itself can make a decisive contribution to maintaining this mobility in a healthy way.

Aim of the idea:

ICS aims to ensure that support

- of a crisis management,
- an authority in general, the public health department or the foreign office ...

by an input from a current traffic movement in a certain area such as a

- State, country, province...
- County, city...
- industrial center, shopping mall,...

with supplementary data of persons with regard to a specific mobility

- Users of a motor vehicle, car, motorcycle, e-bike, ...
- User of a truck
- Secondary movement of a user of a motor vehicle temporarily as a pedestrian

with a specific network / wireless data transmission

- Mobile phone coupled with car
- Mobile phone not paired in car
- Vehicle connected to Internet
- Hotspot WLAN-Connection, public areas
- Drive-recorder in a car without RFID connection
- Drive-recorder in a car with RAD connection

a data transmission is carried out after a classification carried out by the motor vehicle, i.e. an overall evaluation of a mobile movement with supplementary user data.

The classification types listed as examples can be used depending on ...

Hazard group "X1-n" different from pandemic (X1), i.e. epidemic (X2), general infectious diseases (X3), etc. spreading danger in general (X-n)

Exemplary classification types of movement patterns:

- Mobile movement of the motor vehicle in general
- Ditto with health\* conspicuous driver in the xy range on the road
- Ditto temporarily on the road as a pedestrian
- Ditto in a hotspot area of an infection risk
- Same with subclassification "Industrial area/building market/..."
- Ditto with subclassification "Duration/morning, midday, evening".

Exemplary types of classification of persons in motor vehicles:

- Driving without any noticeable health problems (\*), e.g. without signs of a cold
- Driving in a conspicuous health condition (\*), e.g. with cold symptoms, frequent coughing, sneezing, nose blowing, fever symptoms
- Person with hazard potential level 1-n, e.g. because contact with 1-n may be known
- Person with GDB 1-n, degree of disability according to ID card Office for Social and Family Affairs, lung patients, etc.

(\*) A driver or passenger who is conspicuous in terms of health due to sensory perception in the motor vehicle and who is not at all aware of his overall condition and of his belonging to a risk group with the potential to transmit a risk, e.g. transmission of infections

In simple terms, as a coordinating intermediate body, i.e. a kind of coordinator between man/machine/environment, the motor vehicle determines an upstream and downstream risk assessment based on classification data of a mobility and exchanges this data wirelessly with an authority. In a dialogue, current data of an instruction, a prohibition, or any other recommended measure are reported back and, when a functionality or an assistance component of the motor vehicle is started, for example navigation or parking assistant function, etc., checked for possible dangers and, depending on the personal risk potential, an information and/or function is communicated and switched.

The task is solved with ...

- a motor vehicle according to the state of the art (1)
- a mobile phone / mobile terminal of a user / fellow traveller (3)
- a drive recorder (10)/recording device with data memory of all CAN/bus systems, drive/comfort/assistance/ ...
- a simultaneous optical detection/eye-/body scan/IR-temp. sensor of driver/passenger in a passenger compartment (2)
- an ISC control unit in interface connection with a classification tool/software component of a specific hazard group (6)
- a navigation/GPS system (10) with signal path (SE2)
- an in-vehicle access to the Internet (24), and/or
- an in-vehicle Internet access (30) with ...
- an interface with the Foreign Office/a federal authority (20) in general
- an indoor camera (9)
- Sensors (SE1/SE2) at the human-user/passenger-machine/vehicle interface
- a display device for MMI data (4)

Similar to a diagnostic check of the vehicle, a complete check is carried out by the ICS procedure before/after the journey. The result after evaluation of all signals from the above-mentioned components is sent as a diagnosis report (7) from "Motor vehicle/user/passengers/classifications" with a transmission protocol to a federal authority/collection point/crisis team.

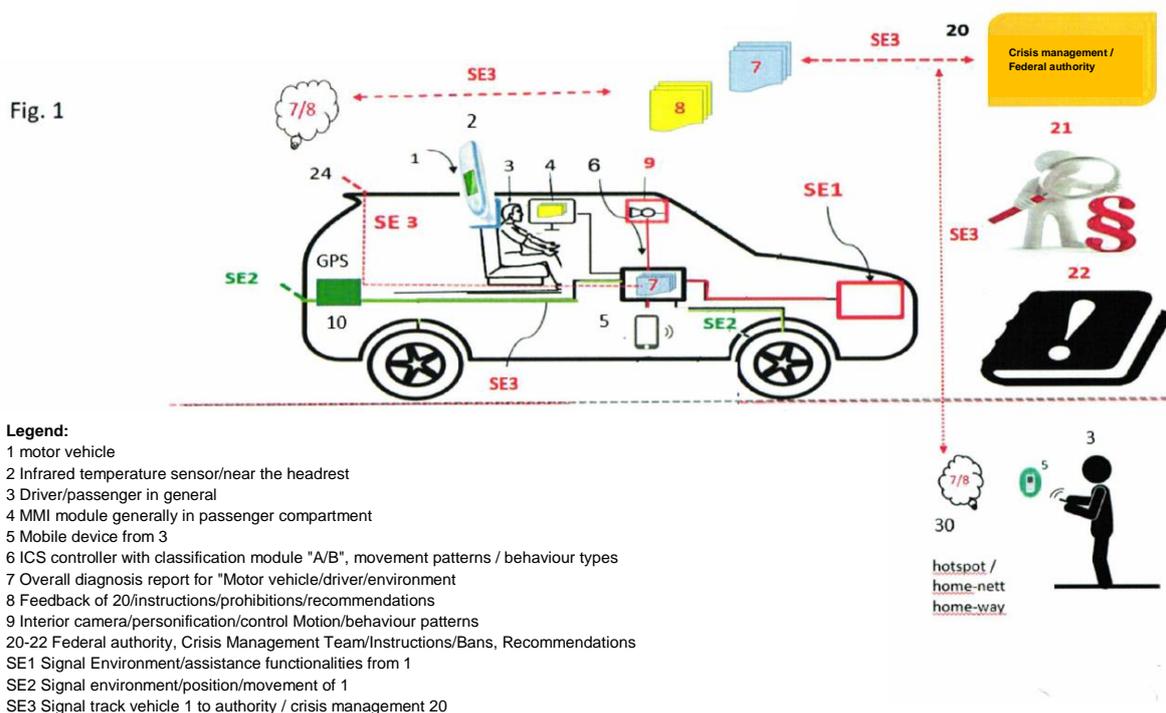


Figure 1

#### Advantages:

- Receiving/maintaining healthy mobility
- obtaining/maintaining a sales outlet for motor vehicles
- Maintenance of consumption in society beyond the motor vehicle with all relevant areas
- Support of a crisis management in the decision of restrictions regarding global mobility/overriding personal protection
- Preserving/maintaining a customer experience with the motor vehicle
- Maintenance of personal health