July 2020

# ACOUSTIC ERROR-IDENTIFICATION

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# ACOUSTIC ERROR-IDENTIFICATION

**Technical task:**

The presented invention disclosure contains a procedure for the identification of faults/component failure/maintenance requirements of components or systems in an automobile. The identification is done acoustically.

**Solution:**

Noises from components or systems are recorded via the vehicle's microphones and compared with a central database. This noise recording is done at the customer's request or at the customer's command to the vehicle.

Based on the comparison with the central database, the cause of the fault is then identified and the customer is informed whether or not a workshop visit is necessary.

The noise recording can also be carried out on a parked vehicle, for example in a customer garage. In this case, the vehicle can also independently activate actuators and thus specifically assign a noise development to an actuator.

**Advantages:**

- The customer can identify faults in his vehicle without having to visit the workshop.
- The customer can activate the troubleshooting independently, for example before a workshop stay (workshop can order parts in advance when transmitting the data), before a MOT appointment or before a longer trip (safety of the vehicle as customer reassurance).
- A vehicle parked in a garage can cyclically carry out an all-round fault diagnosis itself.
- A seamless update capability of the audio spectrum server leads to an identification of all possible errors, including errors towards the end of live.
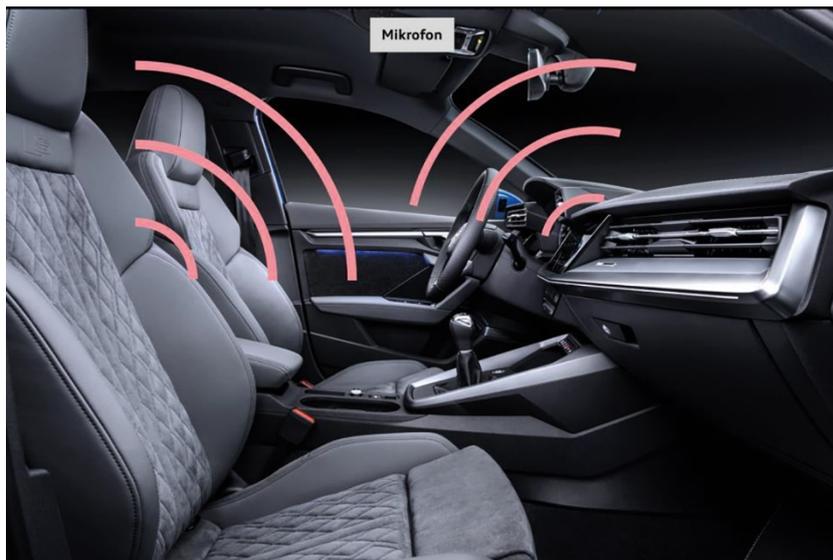
**Sketch:**



Figure 1: Sketch of audio recording inside the vehicle
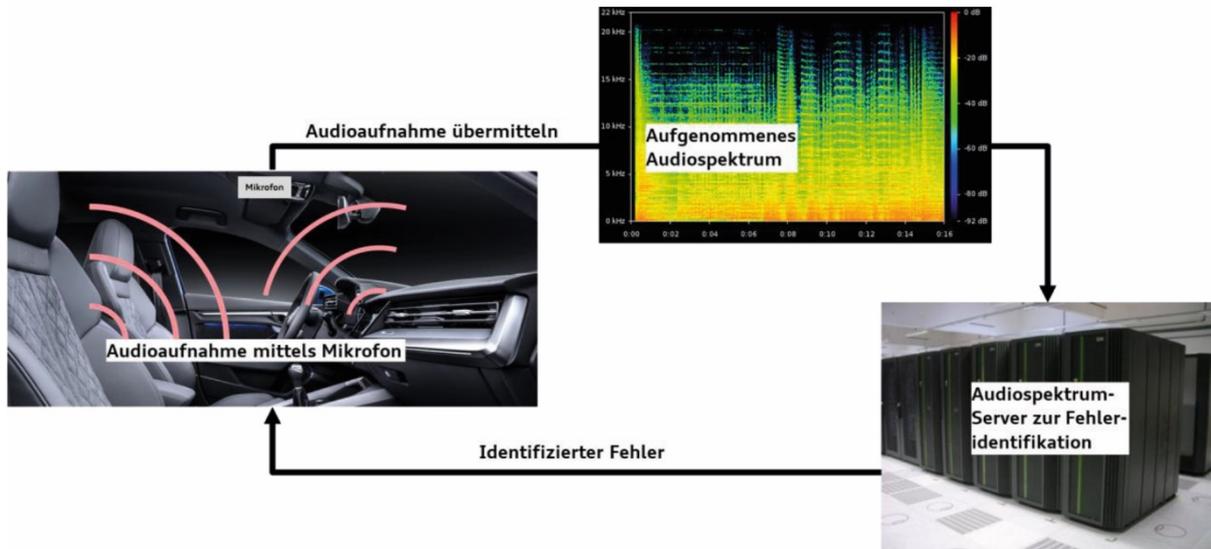
Figure 2: Sketch of audio recording using a closed acoustic room (garage)



Figure 3: Overall approach