

1) 自動車用 エンジン 制御 の ため の センサ として 要求 される 条件 について 考え なさい。

In order to ensure the sensor of Engine Control worked steady and precisely. I think there is some requirements for as follow:

- a. It should sensitive to the measured property in all kinds of situations, such as high-temperature ,plateau and alpine
- b. It should insensitive to any other property likely to be encountered in its application, and satisfy Specifications as The Electrostatic/EMC Environmental Test Specification
- c. It should not influence the measured property. Such as dynamic balance, frequency respons.
- d. As a part of vehicle, it should meet the ROHS, END-OF-LIFE Vehicles and so on.

2) 今後自動車用センサとしてどのようなセンサが必要となるか、二種類以上について答えなさい。

From my point of view, NVH related sensor such as noise sensor is essential to the future automotive, which may contribute to Automotive Self-Diagnosis. As many malfunction come up with different kinds of noise, NVH with machine learning technology can take more features for diagnosis. On the other side, with improvement of flight recorder, there is more and more technology we can translate to automobile.

Another Sensor is temperature and moisture network of crew room. Most time of using air-conditioner in traditional automobile, it always make me feel the setting is imperfect as too hot ,too cold, strong wind while other passengers are not, so I think sensor network can take more information to make more passengers feels better.

Finally, I think sensor is equipment to get information and assist to realized automation, so we can try to connect our car to internet to get all kinds of real-time information as traffic control information, road condition, so we can make our traffic more efficiency like some kind of railway traffic, and realized unmanned.

3) カーエレ センサ の 感想 を 述べ なさい。

Thanks to Prof. UEDA Toshitsugu. His report made me acknowledged various kinds of automotive sensors, the principle of typical sensors and develop direction of sensors.

As a former develop & verify engineer of vehicle electronics, the most impressive one of automotive sensors is stability. To ensure the stability, we have release various test specifications covers from temperature, humidity, mechanical resistance to EMC. The aim of verification is ensure the sensor not only work at "normal" condition, but also worked in all kinds of situation what may happened.