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(B-1):エレクトロニクス、ICT の発達に対して下記について答えよ。

(1)自動車技術にどのような影響を与えているか

(2)ICT の進歩に対する課題は何か

(B-1): Electronics and ICT (Information and Communication Technology) has been improved rapidly.

(1)How these technology effect or impact on the vehicle technology?

(2)What is the subject of ICT technology rapid improvement on vehicle?

Nowadays，more and more vehicle are equipped with electrically-generated systems such as: carputers, telematics, in-car entertainment systems, etc.

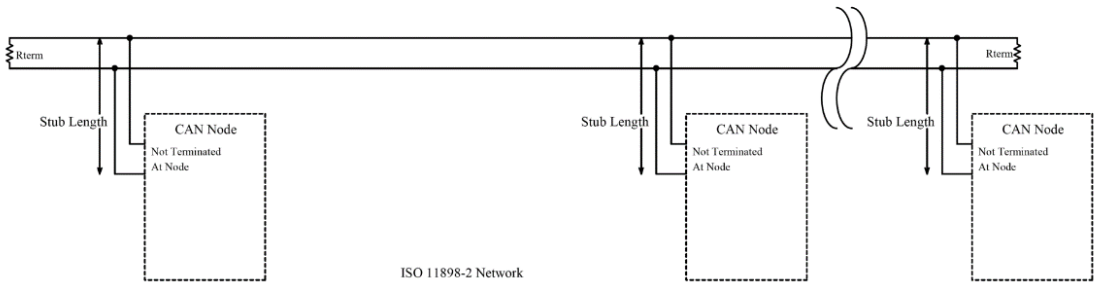
Electronics technology was applied to control engines at first. Which were referred to engine control units (ECU). As electronic controls began to be used for more automotive applications ECU's are modular now. Two types include engine control modules (ECM) or transmission control modules (TCM).

Automotive electronics or automotive embedded systems are distributed systems connected with ICT, and according to different domains in the automotive field, they can be classified into:

1. Engine electronics
2. Transmission electronics
3. Chassis electronics
4. Active safety
5. Driver assistance
6. Passenger comfort
7. Entertainment systems

Each part not only completed electronic control functions independently, but also provide data services to other devices.

As the number of electronic devices on the car increased sharply, automotive electronics or automotive embedded systems are distributed systems, there are up to 100 ECU's in modern car and up to 40 ECUs in a commercial vehicle up to 40. ICT become more and more important to vehicle technology, and CAN bus is the subject of ICT.



[Fig-1 Structure of High-Speed CAN Bus]

CAN Bus simplifying the wiring, reducing the number of electrical nodes and the amount of wire, so that assembly work is more simplified, what's more, it increases the reliability of

information transmission. Through the data bus can access any one electronic control device, read the fault code for its fault diagnosis, vehicle maintenance work easier.

(B-2): ITS が、自動車や交通に与えている影響について授業から感じたことを述べよ。
(B-2): What is the impact of ITS on vehicle? Please write your opinion understood from the lecture.

Intelligent transportation systems (**ITS**) change the relation between driver, road and vehicle. As ITS provide services relating to different modes of transport and traffic management and enable various users to be better informed and make safer, more coordinated, and 'smarter' use of transport networks.
From my point of view, ITS will lead to reform of automotive EE equipment structure.

1,To assist driving, more and more information need to be detected and processed by automotive EE systems instead of driver, so sensing device need to equip in vehicle.

2, As ITS build driver-road-vehicle connected systems based on traditional automotive EE systems, vehicle must reinforce its ability of communication. Not only the communication with devices inside, but also communication with road and other vehicles in different types nearby.

3, With more communication devices equipped, the automotive EE systems become more and more complicated, so the need of calculate ability will be raised significantly.

(B-3): 授業全体の感想を述べよ。
(B-3): Report your impression and comments of today's lecture

It's a great lucky for me to have such a lecture given by T.Ishi which is related with my work experience. There are four parts in.

Professor begin the class with the Introduction to ITS's structure, and present the development history of ITS from 1996 to recent years. Then, Professor explain the self-driving and introduced ITS world conference. And at last, Professor introduced us the latest automobile technology on safety support, and environment problem related with vehicle development.

Among the topics, the most impressive one is the development of ITS, it's the result of multi-technology and management theory development. It makes me to realize that the product should not limited to natural sciences or social sciences, and should combine them carefully.

Reference

1, https://en.wikipedia.org/wiki/Intelligent_transportation_system
2, https://en.wikipedia.org/wiki/CAN_bus
3, https://en.wikipedia.org/wiki/Information_and_communications_technology