

R&D of Engine/Cruise Control Systems for Next-generation Automobiles (Low-environment Burden / Traffic-jam Avoidance / Fuel-saving)

<Program for Fostering Regional Innovation (Global Type) >

Project Team

Project Manager

Kotaro Hirasawa (Professor, Graduate School of Information, Production, and Systems, Waseda University)

Researchers

Harutoshi Ogai (Professor, Graduate School of Information, Production, and Systems, Waseda University)

Takaaki Baba (Professor, Graduate School of Information, Production, and Systems, Waseda University)

Jin Kusaka (Professor, Faculty of Science and Engineering, Waseda University)

Taketoshi Kawabe (Professor, Graduate School of Information Science and Electrical Engineering, Kyushu University)

Kaoru Shimada (Researcher, Fukuoka Industry, Science & Technology Foundation)

Kamal Md. Abdus Samad (Researcher, Fukuoka Industry, Science & Technology Foundation)

Shinji Eto (Assistant, Information, Production and Systems Research Center, Waseda University)

Masatoshi Ogawa (Assistant, Information, Production and Systems Research Center, Waseda University)

Purpose of the Research

[Engine control] - Intrinsic performance of vehicle -

Establish a model-based calibration technology and a model-based control technology for engine, and commercialize it as a low environmental load type engine control ECU.

[Travel control] - Driving performance of vehicle -

Establish an algorithm to realize traffic jam bypassing and fuel-efficient traveling, and commercialize it as an onboard system.

Summary of the Research

- Engine combustion technology, technology to reduce pollution for exhaust emission purification catalyst
- Engine modeling, and high-speed simulation/control technology
- A technology to optimize the acceleration, braking, steering to improve practical fuel consumption in real time
- Optimum path finding technology to bypass traffic jam
- Data mining by the original evolutionary calculation method (GNP)
- A technology to systematize an algorithm in an LSI



Car manufacture

Develop a low environmental load engine control system

Develop a travel optimization control algorithm based on model predictive control theory

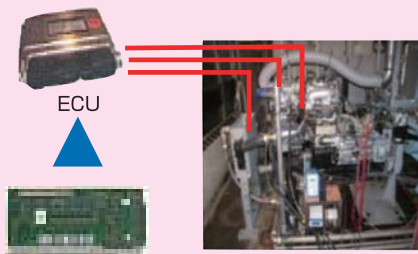


Develop a high-precision traffic volume estimating algorithm and an optimum path finding algorithm

Produce ECU and LSI experimentally to mount the new technology and algorithm on vehicle, and demonstrate its effectiveness in a model road section

Expected Results of the Research

- The early realization a low environmental load engine control system will be possible.
- It will be possible to drive a vehicle highly efficiently and with fewer fuel by reflecting the traffic flow situation in real time.
- By realizing a car navigation system equipped with traffic jam bypassing type fuel efficiency improving function, it will be possible to enhance the competitiveness and greatly improve the practical fuel efficiency.



Prospective Fields of Application

- LSI for low environmental load engine
- Software for low environmental load engine
- Model for developing a model-based engine
- Highly efficient car navigation system with traffic jam bypassing and optimum routing features
- Assist system to prevent unnecessary acceleration
- Fuel-efficient ACC system



Information

Office
System LSI Division
FUKUOKA INDUSTRY, SCIENCE & TECHNOLOGY FOUNDATION
〒814-0001 3-8-33, Momochihama, Sawara-ku, Fukuoka City
Fukuoka Institute of System LSI Design Industry
TEL : +81 (92) 832 7155 FAX : +81 (92) 832 1700 <http://www2.lab-ist.jp/>



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Cooperative support organization
Knowledge Cluster Division, Industry-Academia Cooperation Department,
Industry-Academia Cooperation Center
Kitakyushu Foundation for the Advancement of Industry, Science and Technology
〒808-0135 2F, Industry-Academia Cooperation Center
Kitakyushu Science and Research Park
2-1, Hibikino, Wakamatsu-ku, Kitakyushu City, Fukuoka
TEL : +81 (93) 695 3440 FAX : +81 (93) 695 3439 <http://www.ksrp.or.jp/faiss/>