

**SIS72: Automated Driving Technology Research in Japan:**  
**Strategic Innovation Promotion Program**

**Description:**

Built-in driver assistance features will be integrated with connected vehicle technologies for safety and efficiency. Evolutionary process will continue toward higher level of automated driving. Japanese government initiated a research project on automated driving systems under Cross-Ministerial Strategic Innovation Promotion Program (SIP). Scope of the project includes

- 1) development and verification of automated driving technologies,
- 2) development of evaluation models and simulation technologies on vehicle behavior and collision to effectively reduce traffic fatalities and congestion,
- 3) international cooperation, and
- 4) deployment for next generation urban transportation services.

**Description:**

**Hiroyuki Watanabe**, Program Director, Council for Science, Technology and Innovation, Cabinet Office, Government of Japan

**Tomoyuki Tanuma**, Counselor for Cross-Ministerial Strategic Innovation Promotion Program (SIP), Cabinet Office, Government of Japan

**Masao Fukushima**, Technical Consultant, R&D Engineering Management Division, NISSAN MOTOR CO., LTD.

**Kunio Segawa**, Staff Manager, Technical Research Dept., R&D Technical Administration Div., Mazda Motor Corporation

**Toshio Yokoyama**, Senior Chief Engineer, Technology Development Division 12, Honda R&D Co., Ltd.

**Seigo Kuzumaki**, Assistant Program Director, Council for Science, Technology and Innovation, Cabinet Office, Government of Japan  
Chief Safety Technology Officer Secretary, Product Planning Division, TOYOTA MOTOR CORPORATION

**Masayuki Kawamoto**, Project General Manager, R&D Management Div., TOYOTA MOTOR CORPORATION

**Mamoru Sekiguchi**, Senior Manager, Electronic Product Design Department, SUBARU Engineering Div., FUJI HEAVY INDUSTRIES Ltd.

**Moderator:**

**Hajime Amano**, President and CEO, ITS Japan

## **Background:**

An idea of automated driving was first presented by General Motors at the New York World's Fair in 1939. The exhibition was named as Futurama. The concept still stands true today.

In early days of ITS, in mid-1990s, demonstrations of automated driving were conducted in the United States, Europe and Japan. Those were laboratory level prototypes and premature for real operation.

In 2005 at Aichi-Expo in Japan, automated platoon bus system was put into real operation for passenger services. The system carried about 2 million visitors in 6 months. But never be deployed for permanent operation.

Japanese engineers are patiently searching for opportunity for their dream to come true.

Another project started in 2008 to develop technologies for automated platoon of heavy goods vehicles as a part of multimodal logistic systems.

With precise digital map and ground positioning system, the platoon of vehicles are autonomously find their path.

They are equipped with millimeter wave radar, laser radar, image recognition, and vehicle to vehicle communication. Each vehicle is capable of adjusting both longitudinal and lateral position to adapt to the traffic environment. We demonstrated the system during the ITS World Congress Tokyo last year.

It was found that technologies are already mature for controlled environment. However, there are still number of challenges for automated vehicles to be put into market.

Even so, we can immediately take advantage of each technology element on the commercially available goods vehicles and cars for safety and efficiency. Adaptive cruise control system and lane departure prevention are examples.

We are looking at the progress in the following way.

Build-in features of driver assistance are already commercial products and getting more and more popular.

Cooperative systems are deployed in Japan and at the final stage of field evaluation in the United States and Europe.

The next stage will be advanced driving assistance applications, integrating built-in functions with cooperative systems.

Then fully automated vehicles will become reality, through piece wise introduction, area by area where surrounding conditions allow it.

To realize automated driving, international harmonization is essentially important, which is the reason why we host this session and organizing international workshops.

We have to establish common languages and common understanding on nature of fundamental social issues. We have to develop internationally recognized definition of functionality, performance requirements, and evaluation methodologies. Most importantly, we have to establish social acceptance through validation of technologies.