Advanced Safety Vehicles (ASV) are vehicles equipped with systems to contribute to safe driving via advanced technologies. The ASV Project aims to promote development, introduction, and popularization of ASV technologies.

Phase 6 (FY 2016–2020)
Study Group for the Promotion of ASV
Ministry of Land, Infrastructure, Transport and Tourism

Advanced Safety Vehicles (ASV) are vehicles equipped with systems to contribute to safe driving via advanced technologies. The ASV Project aims to promote development, introduction, and popularization of ASV technologies.
Although traffic accident fatalities and injuries have decreased in recent years, the situation remains serious. In 2016, 3,904 people lost their lives and 618,853 people were injured.

Targets have been set for reducing traffic accident fatalities and injuries, and safety measures are being introduced.

March 2016
10th Traffic Safety Basic Plan
“Reduce to below 2,500 the number of traffic fatalities occurring every 24 hours. Ultimate goal is to build a safe society with no traffic accidents.”

June 2016
Road Transport Subcommittee of Land Transport Committee of Transport Policy Council
By the year 2020, reduce annual traffic accident fatalities by 1,000 (compared to 2010) via vehicle safety measures

In order to achieve traffic accident fatality and injury reduction targets, the Road Transport Bureau of the Ministry of Land, Infrastructure, Transport and Tourism is implementing vehicle safety measures focused on three projects: ① Vehicle Safety Regulation, ② ASV Project, and ③ New Car Assessment Program.

Vehicle Safety Measures

Expansion and Enhancement of Safety Regulation
- Developing vehicle safety measures including vehicle safety regulations and the ASV popularization measures based on traffic accident analyses.

Better relations between popularization measures and development of regulations on new technologies

ASV Project
- Development and popularization of new technologies based on cooperation among industry, academics, and government
- Contribution to the overall activity of ITS (Intelligent Transport System)

Reduction in Accidents

Better relations for user understanding of new technologies

NCAP (New Car Assessment Program)
- Conduct safety comparison tests and provide information to users
- Provide information on the ASV

Safety regulations specify performance levels that must be met so that vehicles are safe.
ASV Project activities began in FY 1991 and have continued for more than 25 years with the aim of reducing traffic accidents through the introduction of ASV technologies. Taking into consideration factors such as the development status of new technologies to enable the introduction of automated driving via advanced safety technology progress and integration, in Phase 6, automated driving will also be considered in the measures implemented.

**Contributions to Accident Reduction via ASV Technologies / The Significance of Automated Driving**

The project aims to realize more sophisticated and wide-ranging safe driver assistance, and make a major contribution to traffic accident reduction.

*Medicine-engineering collaboration: To consider more detailed vehicle safety measures by collecting and sharing injury and emergency medical data in the event of accidents.*

**Phase 6 FY 2016–2020**

Promotion of ASV in Order to Realize Automated Driving

- Review the state of advanced safety technology with automated driving in mind
- Investigate practical technology with the definition of guidelines in mind
- Popularize automated driving technologies, including existing ASV technologies

**Phase 5 FY 2011–2015**

Achieve Dramatic Increase in Sophistication

- Formulate guidelines for emergency driving stop system
- Formulate basic design guidelines for vehicle-to-pedestrian communication systems
- Demonstration of communication-based systems at ITS World Congress 2015 Tokyo driver assistance

**Phase 4 FY 2006–2010**

The Challenges and Further Contributions to Accident Reduction

- Review evaluation methods to measure traffic accident reduction effects and implement assessments
- Formulate basic design guidelines for communication-based driver-assistance systems
- Comprehensive trial of communications-technology-based systems in 30 ASVs on the public roads

**Phase 3 FY 2001–2005**

Promote Popularization and New Technology Development

- Develop concept of driver assistance
- Formulate ASV popularization strategy
- Promote development of communications-technology-based systems
- Trial of communications-technology-based systems in 17 ASVs

**Phase 2 FY 1996–2000**

Research and Development for Market Introduction

- Formulate ASV Design Principles
- Formulate guidelines for ASV technology development
- Verify accident reduction effects
- Demonstration by 35 ASVs

**Phase 1 FY 1991–1995**

Study Technological Possibilities

- Set development goals
- Verify accident reduction efforts
- Demonstration by 19 ASVs

The introduction of automated driving technologies can be expected to reduce the number of accidents caused by driver error.
Safety regulations specify performance levels that must be met so that vehicles are safe.

Number of accidents, number of people injured

1,000,000

Targets have been set for reducing traffic accident fatalities and injuries, and safety measures are

200,000

Vehicle Safety Measures

(Intelligent Transport System)

Contribution to the overall activity of ITS

industry, academics, and government

technologies based on cooperation among

Development and popularization of new

safety measures focused on three projects:

① Vehicle Safety Regulation, Vehicle monitoring and information provision

Better relations for user guidance and information to users

Conduct safety comparison tests (New Car Assessment Program)

② NCAP ASV Project, and

Better relations between vehicle producers and consumers

③ Vehicle-to-vehicle communication, and vehicle-to-roadside communication

Formulate guidelines for ASV technology

● Verify accident reduction efforts

Demonstration by 19 ASVs

● Verify accident reduction effects

● Formulate guidelines for ASV technology

● Formulate ASV Design Principles

• Driver Assistance

Drivers play the lead role in driving vehicles safely, while ASV technologies provide the drivers with assistance.

④ Technical requirements and issues for ISA (Intelligent Speed Adaptation) devices

Vehicle automatically controls speed based on posted road speed limits

Speed limit sign image recognition using camera, etc.

7 Technical requirements and issues for implementation of vehicle platooning and unmanned automated driving transport services in a limited area

Platooning

Driver monitors ASV operation… it is difficult to continue driving.

⑤ Technical requirements and issues for practical driver monitoring techniques

Technical requirements and issues for ISA (Intelligent Speed Adaptation) devices

Vehicle automatically controls speed based on posted road speed limits

Speed limit sign image recognition using camera, etc.

⑧ Popularization of existing technologies via dissemination of knowledge on correct usage collaboration with NCAP, etc.

⑥ Review the state of advanced safety technology with automated driving in mind

③ Investigate practical technology with the definition of guidelines in mind

② Consider the impact and key points requiring attention when automated-driving vehicles are introduced with mixed modes of transport

Communications use Coexistence with two-wheeled vehicles

① Popularization of automated driving technologies, including existing ASV technologies

⑦ Revision of common definitions and names of ASV technologies
Up through ASV Project Phase 5, the following ASV technologies were introduced. Vehicles equipped with these technologies are already being marketed by each vehicle manufacturer.

**AEBS (Advanced Emergency Braking System)**
A device that warns the driver by predicting a collision with obstacles ahead and then provides emergency brake control to mitigate collision damage.

**Pedal Misapplication Prevention Device**
When starting or proceeding slowly, if there is a danger of colliding with something (obstacle, etc.) due to a shift-lever or accelerator-pedal error, the device limits sudden forward movement or sudden acceleration.

**Lane Keeping Assistance System**
A device that helps to control the steering operation to keep the vehicle in the middle of the lane.

**Lane Departure Warning (LDW) Device**
A device that warns the driver that the vehicle is about to move out of its lane.

**Device for Rear View when Backing Up (Backup Camera)**
When backing up, the camera shoots the area behind the vehicle, and the device displays the images on a screen inside the vehicle.

**Rear Approaching Vehicle Warning Device**
Detects vehicle in rear while moving and provides that information. At that time, if the lane-change blinker is operated, the device gives a stronger warning.
To effectively promote the development, introduction, and popularization of ASV technologies, the ASV Project is carried out under the auspices of the Study Group for Promotion of ASV, a joint initiative involving industry, academics, and government.

We are involved in a variety of activities, such as actively contributing to the UN World Forum for Harmonization of Vehicle Regulations (WP29) and the ITS World Congress.

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