

## **A Team Launched to Develop Advanced level-Crossing Obstruction Detection System**

The Railway Technical Research Institute (RTRI) set up Team for Advanced Obstruction Detection System on September 1 in order to promote utilization of the advanced obstruction detection system in level-crossing of commercial-service lines.

### **1. Purpose**

RTRI is currently developing a level-crossing obstruction detection system using far-infrared image processing technology. We will further improve its image processing technique and make the safety performance as perfect as possible in order to develop a commercially-applicable system. This is why the new team was launched and it is part of RTRI's commitment to railway innovation using information and communication technology.

### **2. Responsibilities**

The team will fulfill the following responsibilities. It is a temporary team with a one-year term limit.

- To share the information on the development of other systems.
- To compare performance of similar technologies
- To identify issues to be cleared before completing commercial products (improving image-processing technique, confirming safety performance)
- To gather demands and requirements from railway operators
- To set development targets

### **3. Overview of the kickoff meeting**

The team had its first meeting on September 3. At the meeting, after the remarks by President Kumagai and the team leader, Executive Vice President Watanabe, their expected activities and policy were discussed.

#### **【President Kumagai's remark】**

In April, we started ICT Innovation Project and have been reviewing broad-ranging technical fields from an interdisciplinary perspective. It is important to finish each technical component in order to produce substantial output for one research topic. As the first topic of ICT Innovation Project, we will improve the detection system for level-crossing obstruction that we have already been developing. This team will implement research and development with a high goal of applying the advanced level-crossing obstruction detection system to commercial railway lines. Through this project, all of us will make best efforts to contribute to the safety of railway transportation.

#### **【Team leader, Executive Vice President Watanabe's remark】**

RTRI has so far developed several types of level-crossing obstruction detection devices including ultrasonic-wave type and stereo-image type. However, none of them have been used widely due to

various reasons. Now, this team was set up and we will work toward the purpose of completing commercially-applicable level-crossing obstruction detection system using far-infrared image processing technology. We will identify the characteristics and the performance limit of the system and introduce it to the places where it will fit in. Since the research cost and schedule are also important, the team members will share such information through the project work. As the term of this team is limited to one year, we would like to implement well-focused tasks effectively.

**【Organization of the team】**

Leader	Executive Vice President
Assistant Leader	Deputy Director, Research and Development Promotion Division Director, Signalling and Transport Information Technology Division Senior Chief Researcher, Train Control Systems Signalling and Transport Information Technology Division
Member	Director, Assistant Senior Researcher, Researcher Signalling Systems Signalling and Transport Information Technology Division  Director, Senior Researcher, Researcher Image Analysis and IT Signalling and Transport Information Technology Division



Kickoff meeting

\* **Level-crossing obstruction detection system using far-infrared image processing technology**

This device detects obstructions in level crossing by analyzing thermal images taken by far-infrared camera. This is less susceptible to the impacts of weather conditions and sunbeam and does not require lighting. We are using mechanical learning technology to develop a system that is capable to detect any shape of objects with a size of 20×100cm.



**Far-infrared camera**



**Image of level crossing**