Intelligent Road is a project aiming at increasing safety of the arctic roads in Northern Scandinavia. By using the innovative technology of the northern businesses, a system that can provide road-users with short-term road weather information data, is created. The testing and system implementation is carried out by combining the exclusive arctic know-how and testing facilities of the project partners in Finland and Sweden.
TECHNOLOGY

Technology brings new possibilities for acquiring crucial road-weather data and communicating it to road-users and other user groups. Intelligent Road system combines local short-term weather forecasts, road-weather stations, other road-side technology and in-vehicle installed measurement devices into common system. Northern businesses are providing their technology to be used and tested as part of functional Intelligent Road system.

ARCTIC KNOW-HOW

The project is carried out mainly by research organizations with exclusive arctic know-how. The participants all have expert-level knowledge, experience, facilities and partner networks in the field of arctic conditions, thus forming an arctic know-how cluster unlike anywhere in the world.

SAFETY

There is a strong demand for increasing safety on the arctic roads. The special and harsh climate conditions often lead to quick changes in the road-weather. Especially during the long winter period the road might be snowy, icy, slushy or even wet. The newly rained water can easily make a dangerous surface on the road when the temperature quickly sets lower. However, a system that would reliably and accurately communicate these changes to the road-users is absent.
THE INTELLIGENT ROAD SYSTEM
The center of the system receives and processes data from external weather services, road weather stations and sensors as well as road users, creating real-time information.

The information is then delivered to road user’s in-car displays, roadside displays and digital traffic signs. The information is also used to manage road maintenance.

The system uses forecasts and current weather information from external weather services. Combining this information with data from other sources in the system increases the informational and predictability value of the whole service.

These permanent roadside stations monitor the local, real-time conditions, delivering data to the main server.

Road users receive real-time weather information regarding their location and upcoming sections of the road. The information is displayed on user terminals, which can be mobile devices or other in-car display systems. This key element of the system helps the driver to prepare and adjust for challenging and ever-changing conditions of the arctic roads – thus reducing the chance for accidents.

Some vehicles are also equipped with optical friction sensors and/or infrared thermometers, which constantly monitor the road conditions, keeping the driver informed. The data also gets sent to the main server to be processed and distributed to others.

These roadside display mediums provide road users with real-time road weather information, warnings and regulations, controlled by Intel-ligent Road system through the main server.
EXECUTION

- research, development and testing center located in Finnish Lapland
- core competence in cold and winter technology
- special expertise in measurement and testing as a part of research and product development
- part of Rovaniemi University of Applied Sciences

- leading technological university located in North-Sweden
- special expertise in vehicle technology and vehicle testing in cold climate
- substantial role in the R & D in rail and road sectors, automotive testing and energy-efficient vehicle technology

- research agency under the Ministry of Transport and Communications
- FMI’s Arctic Research Centre (ARC) provides versatile observations of arctic low temperature conditions
• authority working towards safe and functional transport and traffic systems in the duty of the ELY Centre
• responsible for ensuring the safety of daily travel and transport in a sustainable way
• consultative role in the project