ITS SYSTEMS

ROAD WEATHER

RWIS

ROAD WEATHER MONITORING

GENERAL CHARACTERISTICS

The sources of information supporting road safety related to environmental conditions are, together with the weather forecasts provided by special entities, the road weather parameters provided by the **RWIS** (Road Weather Information Systems) field stations and the road surface thermal mapping data.

The **RWIS** solution provides Operators with strategic decision-making data in support of road safety in the event of adverse road weather conditions (presence of ice on roads, scarce visibility, snowfall, heavy rainfall, etc.).

The attenuation of subjectivity, the reduction of human error, and decision-making process supported by precise and objective information, allows to act in a targeted manner in the face of criticalities and of operating via selective treatments.

"Safety equals knowledge": **RWIS** therefore is a complete solution consisting of road weather stations, specific sensors for road surface status detection and a thermal mapping service for the characterisation of the road's thermal behaviour.

The SMI central management software then oversees the collection, processing and intelligent display of all of the information coming from the road weather monitoring system and provides the information required for decision-making.

Knowledge of current weather conditions and the availability of road weather forecast information, as well as of information integrating traffic conditions, allows to: alert users via warning messages; quickly mobilize intervention teams, thus increasing safety and improving service.

In addition to the safety aspect, the **RWIS** solution significantly helps rationalise the use of road salt used to contrast the formation of ice on roads.

In addition to the benefits for the environment, the significant reduction in resources needed by road maintenance operators and the optimisation in the use of means and personnel lead to considerable cost savings.

MAIN FEATURES

- Real time knowledge of road weather conditions
- Reduction in winter maintenance costs
- Considerable road safety increase in the event of adverse weather conditions
- More efficient decision-making process
- Environmental protection and more rational use of road salt

TECHNICAL CHARACTERISTICS

ARCHITECTURE

- Peripheral level: Weather stations for detection of road weather parameters; road thermal mapping
- Central level: web-based SMI integrated software platform for the processing and display of road weather data and for field systems supervision

COMMUNICATION SYSTEM

- Ethernet; Wireless; FO (optional)
- Mobile GSM/GPRS/UMTS network

DATA DETECTED

- Weather data: in function of existing sensors
- Traffic data (optional): speed, length, distance, interval, class, etc.

ROAD-WEATHER MONITORING SYSTEM

- Detection of roadside environmental parameters: temperature and relative humidity of air, presence and characterisation of precipitation, wind direction and speed, atmospheric pressure
- Detection of road surface status: dry / wet road surface, presence of road salt, surface and in-depth temperature

THERMAL MAPPING SERVICE

- Thermal mapping performed via IR sensor installed on a vehicle

SMI SOFTWARE PLATFORM

- Web-based
- Web GIS (indication of system location on maps)
- Accessible from fixed and mobile devices (PC, tablet and smartphone)
- Direct supervision and control of field systems
- Alarm generation
- "Trouble Ticketing" system for system maintenance management

DATA ANALYSIS

- Patterns of road surface temperature variation
- Dew point calculation
- Graphs showing parameter changes over time

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