

MS3 - Developing RWiS into an Open Information System

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Abstract

MS3 is the latest development in a series of field stations dating back to the beginning of the late 70's. The field station is an integrated part in the Swedish Road Weather & Information System. The other major components of the system are:

- Weather satellites
- Weather radar stations
- Forecast models

Presently more than 600 fieldstations are in use covering all major roads in Sweden. The normal configuration of a field station includes the following types of sensors (from various suppliers):

- Temperature (air and road surface)
- Wind (direction and speed)
- Humidity
- Precipitation (type, intensity and amount)

The MS3 fieldstation is based on an industrial PC platform. The hardware is designed with minimized maintenance, cost effective production and maximum performance in mind. This platform opens up the whole market of equipment and additional boards for PC's.

The software is designed according to the OSI specification levels. This means almost unlimited flexibility and possibilities when it comes to future development.

MS3 hardware

The MS3 fieldstation is based on an industrial PC platform of standard type. The current configuration is built around an Intel 486/100 processor. The hardware can be easily upgraded when necessary. The PC platform also means that much of the standard equipment on the market can be used. Today technology is developing very rapidly. Therefore the platform must be designed to be able to incorporate new hardware easily without costly and time consuming redesign. The software is developed in accordance with the layers in the OSI model. C++ developing environment is used to get an object oriented design.

The operating system is based on Windows NT. Several functions are already partly or fully included in the software layers but not yet implemented, as seen on the OH. When new hardware gets available and/or new demands are put on the fieldstation it is very easy to incorporate these because of the open layout of the system hardware and software. Some examples of possible new areas supported by MS3 are:

- Traffic counting
- Weighing in motion
- Pollution detection or measurement
- CCTV and image processing
- Toll collection
- Noise measurement
- Info to motorists
- Road condition monitoring

The above examples indicates that the MS3 is not only a **Road Weather Information System** but also a **Road Information System**.

The MS3 system solution means a possibility to leave the proprietary world. The MS3 can be supported by any supplier of HW or SW services. This in turn give the system owner the opportunity to buy from the lowest bidder, thus always having a competitive situation. This will reduce the cost for basic investment as well for further development of the system.

Today the National Swedish Road Administration has close to 100 MS3 stations in service. The next winter season a further 100 stations will be put in service.