

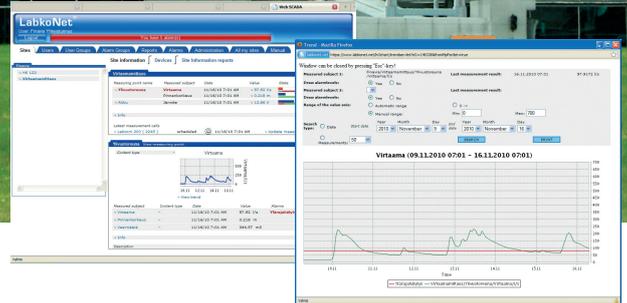
measure bulletin

Newsletter for the customers of Labkotec Oy

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Automation brings reliability to environmental measurements



The measurement results needed by Finavia are sent daily to the LabkoNet® server from which they can be retrieved to the computer whenever needed.

Many industrial facilities are required to monitor and report the condition of the environment and the changes in nature they may have caused. Potential objects of measurement include long-range transports and runoffs to watercourses.

Until now, the measurements have usually been carried out by visiting each measuring point on the terrain. The necessary samples are taken at the same time and analysed in a laboratory. This measurement method is arduous and its accuracy is often poor, because the sampling and measurement interval is long.

Wireless data transfer improves the measurements considerably. The measuring interval can be made shorter and the collected information can be sent forward as data packages, for example.

Currently, the energy demand of the devices is so low that they are capable of operating outside the electric grid by means of a photo cell and a battery, etc.

Runoffs monitored at Helsinki Airport

Helsinki Airport monitors the runoff water exiting the area, among other things. Formic acid salts are used for runway anti-skid treatment, and the icing of aircraft wings is prevented using propylene glycol-based fluids. Even though the majority of these chemicals go to the treatment plant, part of them end up in the surface water.

The Kylmäoja River flows on the east side of the airport, far away from the airport buildings and technology. The water quality and flow rate are monitored by means of terrain visits carried out every second week.

The water level is measured at the same time when the water sample is taken and used for calculating the flow rate.

The commissioning of an unmanned sampling station showed that changes in the Kylmäoja water level occur very fast. According to the level measurement that takes place at one-hour intervals, the occurrence of rain is reflected in the flow rate almost immediately. Even a daily measurement would not suffice to indicate the actual flow rate.

“We are now using a pressure sensor to measure the water level. The measurement is carried out once an hour, and the results are sent daily over a GPRS connection. The flow rates are calculated from the water level on the server using a standard dam equation. LabkoNet® generates daily and monthly flow rate reports with a single click,” says **Elina Kauppila**, Environment Affairs Specialist at Finavia, the company operating the airport.

She says that the measurement has also provided Finavia with new information about the situation. The rapid effect of rain on the flow rate is quickly seen from the measurement results. The results can be used in load calculation and the planning of drainage water systems. Obtaining reliable data requires sufficiently frequent measurements.

The equipment runs on a battery charged by a photo cell. Product Manager **Petri Tontteri** from Labkotec estimates that a maximum of one charging is needed during the dark season, but the photo cell is most likely capable of sufficiently charging the battery year-round.