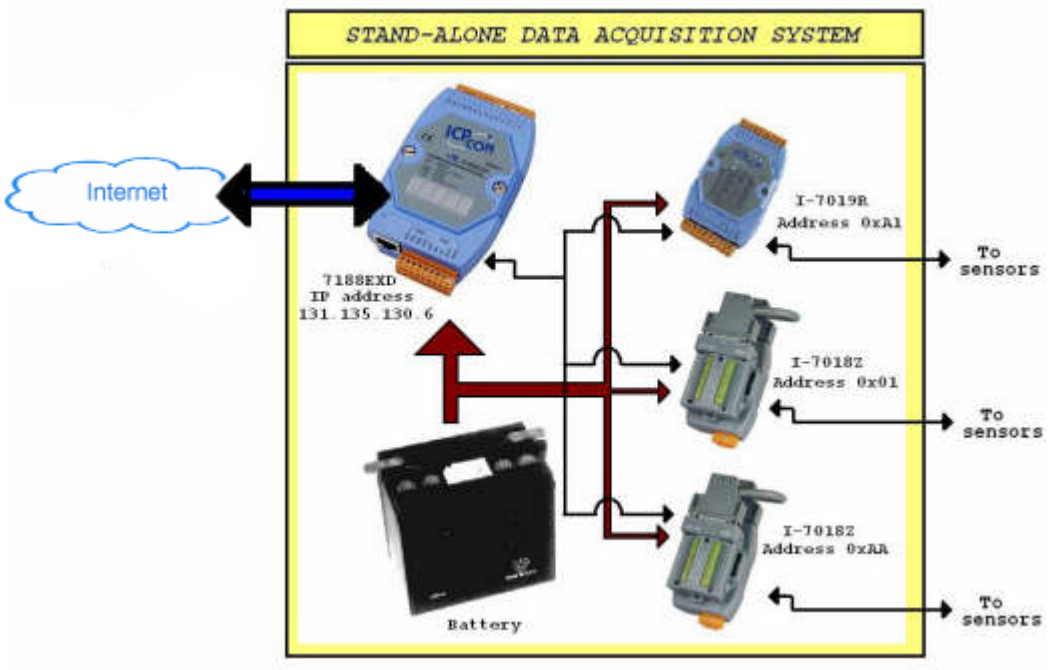
Stand Alone Data Acquisition System

Defense R&D Canada is an agency of the Canadian Department of National Defense responding to the scientific and technological needs of the Canadian Forces. They developed SADAS-- the Stand-Alone Data Acquisition System. It is an autonomous customized system that allows researchers in the field to collect, pre-analyze, and store various soil and weather parameters. The system was designed using the versatility of a number of ICP DAS modules: the embedded internet controller I-7188EXD, and the ADC series I-7018Z and I-7019R.

The internet controller performed double-duty as both data acquisition system and data server. After a quick configuration by the client, the I-7188EXD goes into a continuous data collection loop, collecting data from the attached I-7000 modules at a predefined period, and writing it to its temporary memory. Connecting to the internet controller via TCP/IP through the RJ45 connector, operators would periodically download the data for further analysis.



The dynamic characteristic of the SADAS system derives from the I-7000 series ADCs' easy adaptability to a great variety of different sensor inputs. Accessed and controlled through the I-7188EXD, each ADC module's ten inputs could be configured

individually to be in either voltage or current mode, depending on the input type and input range of the attached sensors. The client software was done using Visual Basic 2008 and the firmware software for the I-7188EXD was written using turbo C V1.0. For stand-alone operation, the system was powered by an external valve-regulated lead-acid 12 VDC battery, which was trickle-charged by a 25W solar panel.