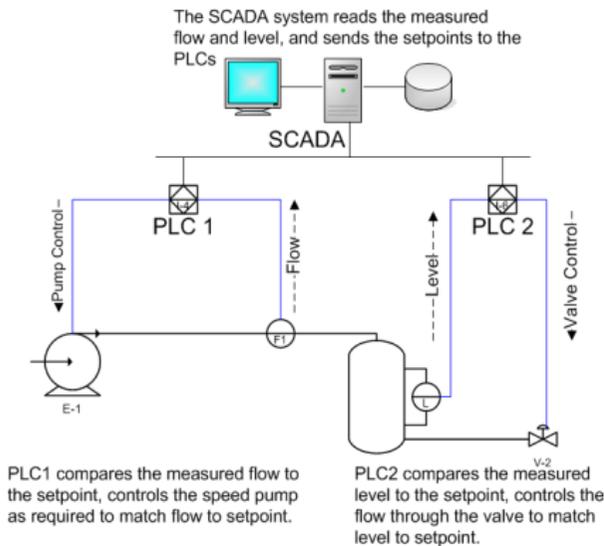


Internet-based SCADA: The New Era in Communication Technology

SCADA is a term that is used broadly to portray control and management solutions in a wide range of industries. Some of the industries where SCADA is used are Water Management Systems, Electric Power, Traffic Signals, Mass Transit Systems, Environmental Control Systems, and Manufacturing Systems.



Companies are considering using the Internet for supervisory control and data acquisition (SCADA) to provide access to real-time data display, alarming, trending, and reporting from remote equipment. Using the Internet makes it simple to use standard Web browsers for data presentation, thus eliminating the need for proprietary host software. It also eliminates the cost and complexity of long distance communications.

Benefits SCADA Systems provide

- Reduces operational costs
- Provides immediate knowledge of system performance
- Improves system efficiency and performance
- Increases equipment life
- Reduces costly repairs
- Reduces number of man-hours (labor costs) required for troubleshooting or service
- Frees up personnel for other important tasks
- Facilitates compliance with regulatory agencies through automated report generating

Internet Based SCADA as a system

There are many parts of a working SCADA system. A SCADA system usually includes signal hardware (input and output), controllers, networks, user interface (HMI), communications equipment and software. All together, the term SCADA refers to the entire central system. The central system usually monitors data from various sensors that are either in close proximity or off site

For the most part, the brains of a SCADA system are performed by the Remote Terminal Units (sometimes referred to as the RTU). Most often, a SCADA system will monitor and make slight changes to function optimally; SCADA systems are considered closed loop systems and run with relatively little human intervention.

Implementation of Internet based SCADA for forecasting weather

R.T. Solutions Pvt. Ltd. Has been involved in projects like The Real Time Data Acquisition System for flood forecasting. The project was done for DHM Nepal. The Flood Forecasting System is a project designed especially for collecting the data from sensors placed at different parts of an area for forecasting flood.

The data is transmitted through wireless medium over the internet to a database server where it can be analyzed and hosted in the website for general information.

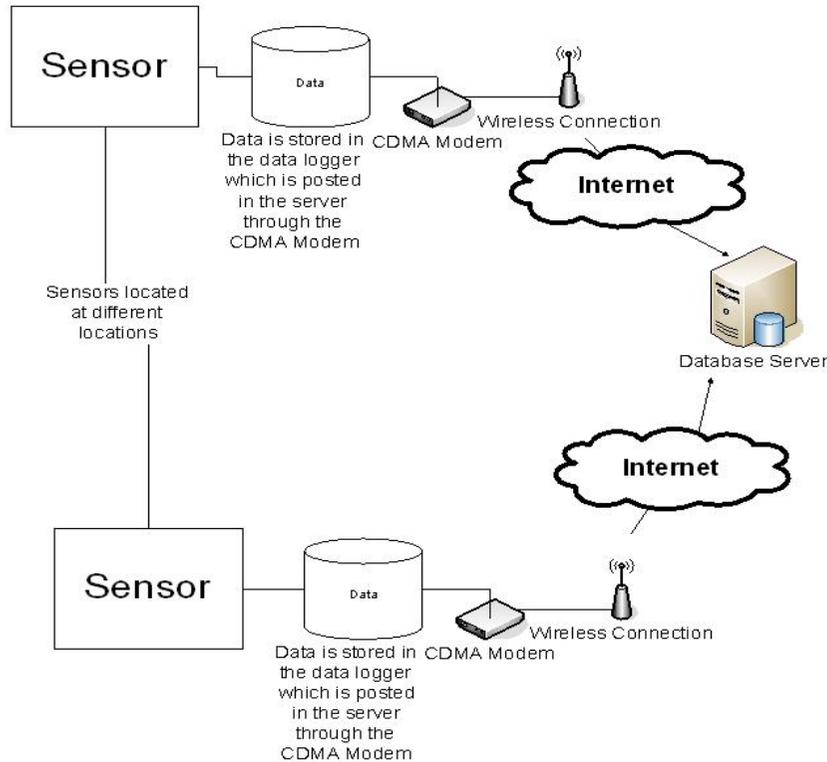
The system uses various sensors for detecting rainfall intensity and sensing the water level of the river. These data is first stored in a data logger, which supports CDMA transmission. The data is stored and transmitted at an interval of every minute so that the data can be logged.



Overview of the Real Time Data Acquisition for Forecasting Flood

System Components

The three components of a SCADA system are:



Multiple Remote Terminal Units (also known as RTUs or Outstations):

The RTU connects to physical equipment, and reads status data such as the open/closed status from a switch or a valve, reads measurements such as pressure, flow, voltage or current. In this projects the RTUs used were the water level A/E decoder, Tipping Bucket Rain Gauge.

Master Station and HMI Computer(s):

The database server serves as the master station. It is responsible for communication with the field equipment (RTUs, PLCs, etc) and then to the HMI Software

running on workstations in control room or elsewhere.

Communication infrastructure: The remote management or monitoring function of a SCADA system is often referred to as telemetry. This system implements CDMA protocols to transfer data over the internet.

Internet-based, secure, real-time SCADA is now a reality, and offers many benefits:

- Provides corporate-wide solution that integrates new and legacy SCADA equipment
- Flexibility – choose equipment and systems based on price/performance rather than compatibility with installed base
- Scales quickly from a few sites to thousands
- Single solution is suitable for both local and enterprise-wide applications
- Subscription service contract option available
- No capital investment is required

