TELEMETRY: BASICS

DEFINITION

The sensing and measuring of information at some remote location and then transmitting that information to a central or host location. There, it can be monitored and used to control a process at the remote site.

BENEFITS

Transmission via radio waves or wireless >>> others because

- No transmission lines to be cut or broken
- Faster response time
- Lower cost compared to leased lines
- Ease of use in remote areas where it is not practical or possible to use wire or coaxial cables
- Easy relocation
- Functional over a wide range of operating conditions

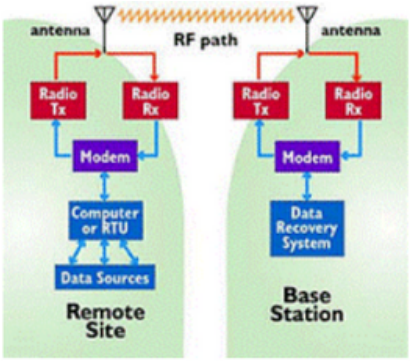
Properly designed radio links

- Low cost
- Effective and flexible data gathering systems
- Long lasting
- Little maintenance

COMPONENTS OF A TYPICAL WIRELESS TELEMETRY SYSTEM

Remote site

- **Data source** are typically the sensors.
- Output of **sensor(s)** is converted to digital data by a small computer device or **RTU (Remote Terminal Unit).**
- **RTU** is interfaced to a **modem** device that converts the digital data into an analog signal that can be transmitted over the air.
- The **radio transmitter** then transmits the signal to the host site **radio receiver.**
- Now the **process** is **reversed**.
- The **modem** takes the analog signal received and converts it back to a digital form that can be processed by the **data recovery equipment.**



Base station

- The **base** or **host site** requests data from the **remote site(s).**
- The **base** transmits a request to the **remote unit** telling it to send its data.
- The **base** reverts to a receive mode and awaits the transmission from the remote site.
- After the **remote** sends its data, it goes back to a receive mode waiting for further instructions to come from the **base**.
- Once the **base** receives the **remote site** information, it may send additional instructions to that site or continue on to request data from the next **remote site**.
- This polling process continues until all the remotes in the system have sent their data.