

EIPC
NEE-403
Unit-3

METHODOLOGY

METHODOLOGY

- ❑ DAS begins with the physical property to be measured. Examples of this include temperature, light intensity, gas pressure, fluid flow, force etc.
- ❑ A sensor, which is a type of transducer converts a physical property into a corresponding electrical signal
- ❑ Signal conditioning may be necessary if the signal from the transducer is not suitable for the DAQ hardware being used.

□ After signal conditioning the analog wave output is converted into digital form using A/D converter.

□ Once digitized, the signal can be encoded to reduce and correct transmission errors.

□ This whole process is called as DATA ACQUISITION SYSTEM



DAS HARDWARE AND SOFTWARE



DATA ACQUISITION HARDWARE

➤ DAQ hardware interfaces the signal and a PC. It could be in the form of modules that can be connected to the computer's ports or cards connected to slots in the motherboard. Following are some hardware's...

- CAMAC - Computer Automated Measurement and Control
- Industrial Ethernet
- Industrial USB
- LAN eXtensions for Instrumentation
- NIM
- PowerLab
- VME bus
- VXI

DATA ACQUISITION SOFTWARE

- DAQ software is needed in order for the DAQ hardware to work with a PC.
- Involves the use of a programming language, such as:
 - C++, visual C++
 - BASIC, Visual Basic + Add-on tools (such as Visual lab with VTX)
 - Fortran
 - Pascal
 - Ladder logic
 - Lab view

MERITS AND DEMERITS

MERITS/ADVANTAGES

- Reduced data redundancy
- Reduced updating errors and increased consistency
- Greater data integrity and independence from applications programs
- Improved data access to users through use of host and query languages
- Improved data security
- Reduced data entry, storage, and retrieval costs
- Facilitated development of new applications program

DEMERITS/DISADVANTAGES

- ❑ Database systems are complex, difficult, and time-consuming to design
- ❑ Substantial hardware and software start-up costs
- ❑ Damage to database affects virtually all applications programs
- ❑ Extensive conversion costs in moving from a file-based system to a database system
- ❑ Initial training required for all programmers and users

BACK

CONCLUSION

- ❑ Data acquisition systems typically convert analog Physical condition into digital values for easy processing.
- ❑ DAS is advantageous as we can store a lot of physical condition data in digitized form
- ❑ DAS helps in easy processing of data as well as easy comparison can be done.
- ❑ Today DAS is used in almost every field, industry and companies.

ANY QUESTIONS ???

Thank You