Case Study :

Expert System for Automatic capacitance and Tan delta (Loss factor) measurement system

Background:

Equipment is used to measure capacitance and tan delta (loss factor) of various electrical objects Loss factor gives the quality of insulation of particular object and the rate of change of deterioration helps in predicting the life of electrical objects.

This equipment works on capacitance and tan delta measurement principle using Bridge balancing principle. Prior to automation, the process of balancing the bridge was clumsy, iterative, time consuming and required highly skilled/expert person.

The automated system is designed based on all probable field conditions and expert's knowledge. New system has been designed with expert's field experience and bridge balancing knowledge, to give fast, consistent and trouble free operation.

Challenges:

1. Learn basic manual systems and theory of the equipment.
2. Understand the human decision making process and convert into expert system.
3. Identification of hardware suitable for use in 400KV switch yards having very high electromagnetic interference.
4. Balancing time less than 30 sec.