Integrated Study

- Title: Design and Build an Automation System

- ENG3501 Automation Programming Techniques
- ENG3502 Control Network

Reference:

•All CN and LabVIEW Lab sheets

•Introduction to LonWorks*

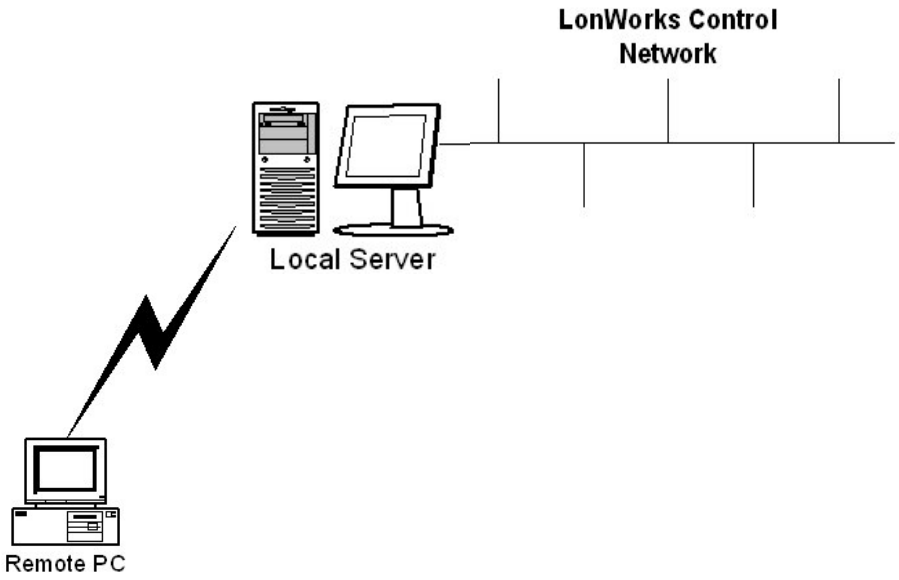
•LonMaker for Windows User's Guide*

•LonPoint Module Hardware Installation Guide*

•LonPoint Plug-In and Application User's Guide*

*All can be downloaded from
http://www.echelon.com/support/documentation/Manuals/default.htm

Requirements



Control Network: Integrated Study

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•Your group in size of 4 should come up with an application using Control Network. The application can be related to your field/stream or your interest, for example, security system for IBAE, intelligent switchboard for ES, object tracking by RFID for WMS and railway signaling for T&P, just to name a few.

•In your design, you should provide:

- •A commissioned control network that can operated without computer, or a partially commissioned network for a large system
- •A local HMI that can monitor and control the network
- •A HMI that can remotely monitor and control the network

•In the design of the task you should consider the aspects of safety, efficiency, and ease of operation.

•Teamwork should be reinforced throughout the assignment.

•Hands-on worksheet will be given for familiarization of LonWorks Control Network interfacing by LabVIEW.

Apparatus

- 4 LonPoints mounted on the demo kit
  - 4 DI channels
  - 4 DO channels
  - 2 AI channels
  - 2 AO channels
- Software:
  - LonMaker for Windows
  - LNS DDE Server
  - LabVIEW
  - IE

•Simple interface circuit can be built to demonstrate your idea. If so doing, please make sure that the signal level of your circuit can be fed to the LonPoint.

Scheduled Activities in CN

- IS 1 – Introduction, group formation and discussion
- IS 2 – Proposal submission
- IS 3&4 – Construct control network
- IS 5 – HMI design in LonMaker
- IS 6 – HMI development by LabVIEW
- IS 7 – Demonstration, presentation and report preparation
- IS 8 – Presentation and report submission

- The proposal should contain the functional description of your automation system, suggested installation, internet search of similar system or products in the market (optional), … any supporting materials.
- The formal report submitted at the end should contain all the design features, detailed drawings, operational procedure, limitation of your design and further improvements on both LonWorks Control Network and LabVIEW HMI.
- Presentation time is 40 min including Q&A

Problems to Think About

Control Network:

- Apply functional blocks other than those used in Lab
- Subsystems
- Access right for different users

HMI in LonMaker:

- Insert a suitable background to your HMI

LabVIEW HMI:

- Browser or application program in the remote PC

Do Enjoy