Features

- Bus, star and ring topologies
- Socket programming and processing
- Data encryption and decryption
- Ethernet and wireless LAN protocols
  - Stop and wait
  - Go back to n
  - Selective repeat
  - Token bus
  - Token ring
  - CSMA/CA
  - CSMA/CD
- User selectable packet size from 128 bytes ~16384 bytes
- User selectable inter packet delay from 1000ms ~ 5000ms
- Manual and auto error generation
- Real time graphical representation of entire transmission and reception
- Auto detection of IP addresses and names of each node in the transmission
- Measurement of packet transmission time
- Measure of throughput
- Effect of bit errors on various protocols
- Built-in protocol analyzer
- Built-in network analysis
- Facility to plot graphs
- Real time software can work on existing LAN
- Library files provided for project purpose
- Built in help

Specifications

Hardware
Topology

I) Star   ii) Bus   iii) Ring

- Nodes   : 4 Nodes
- Data Rate   : 10/100 Mbps
- Interconnection : RJ45 connection cable to connect hardware to computer LAN card

Software
Topology selection

I) Star   ii) Bus   iii) Ring

Protocols selection

I) Stop and Wait
ii) Go back to n
iii) Selective repeat
iv) Sliding window
v) Token Ring
vi) Token Bus
vii) CSMA / CD
viii) CSMA / CA

- -Packet Size   : 128, 256, 512, 1024, 2048,4096, 8192, 16384
- Inter packet delay   : 1000,2000,3000,4000,5000ms
- Error generation   : Bad packet, acknowledgment lost and auto error generation
- Encryption and decryption of data

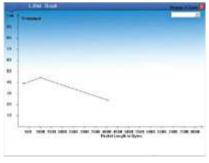Note: Specifications are subject to change.

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Network details

Indication of computer name, IP address, Port number, status of network, MAC address and operating system on computer.

Graphical representation

Graphic representation of Data on software screen with differentiation of packet to be transmitted, packet being transmitted, packet transmitted with acknowledgment, packet with acknowledgment lost error, packet with bad packeterror and packetwhich is discarded or resend. Measurementand plotting

Error rate calculation, Throughput calculation

Protocol analysis

Indication of packet serial number, file name, file size, file number, receiver name, workgroup, receiver IP address, current packet, total packets, packet length, delay, protocol, topology, receiver MAC address, port number, packet send time, acknowledgment receive time, inter packet delay, data rate (MBPS),number of resend packets, acknowledgment value

Networkanalysis

Indication of packet serial number, file name, file size, file number, receiver name, work group, receiver IP address, total packets, packet length, time out, protocol, topology, receiver MAC address, port number, file send start time, file sent completion time, transmission time, data rate (MBPS), error.

- 8x 10x100 Mbps RJ-45 N way ports
- Complies with IEEE802.3 and IEEE802.3xstandards
- Supports MDI/MDI-x auto crossover
- Up to 200 Mbps data transfer rates (full duplex)
- Plug and play installation
- Energy efficient

Experiments

- Study ofnetworktopologies
- Study of Ethernet LAN and Wireless LAN
- Study of data encryption and decryption
- Implementation and study of stop and wait protocol
- Implementation and study of go back to n protocol
- Implementation and study of selective repeat protocol
- Study of token ring and token bus protocol
- Study of sliding window protocol
- Studyof CSMA/CA protocol
- Study of CSMA /CD protocol
- Measure of throughput and the effect of bit errors on various protocols
- Socket programming

Note: Specifications are subject to change.

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