Constructing an Ad Hoc Network with 802.11b
LCT 1 - 07

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To create a network which does not need base stations and provide a dynamically reconfigurable network structure using 802.11b as well as operated in Linux.

The laptops, therefore, will be routers firewalls and access points. They provide network connectivity, routing, authentication and authorization.

When a recognized person joins the network, he/she will easily and immediately be able to access the network to communicate with each other in the network. The network has a protocol to sense the potential neighbor and form the network topology automatically.

Since the computers in wireless network are powered with battery, only selected computers are responsible for packet forwarding to avoid unnecessary traffic.

Moreover, power-saving and security functions are supported by the plug-in functions. The HTTP information of the network and the network topology can also be shown so that it is easier to perform system testing and debugging.
Using OLSR to connect to the real internet is our major target and goal. We need to implement the code such that the RRA packets can be routed and forwarded. Moreover, we implement the nameservice.c such that DNS can be worked in OLSR. After connected to internet, we can do whatever we want such as download a video from Youtube as well as video streaming etc.

HTTP info is achieved by implementing a tiny HTTP server that will respond to a GET request by returning a HTML formatted page which contains different information about the currently running olsrd process. This information includes detailed link status for all links and neighbors, all olsrd routes in the kernel, local configuration, uptime and more.

Using Messager in OLSR allow us to communicate in the AD HOC network mode. We apply the messenger we did in the course ELEC 313 to OLSR. Besides communication, we can use it to check the route table since once the message did not get to the other side. There may be some routing or connection problem exists.

When we need to run OLSR, what we need to do is setup the configuration files. Moreover, if we want to connect to internet, we need also setup the nameservice too. Since it may be too difficult and complicate to set up configuration file every time especially for the new users. We therefore implement a friendly used Automation Configurator with a GUI such that setting up configuration files is no longer difficult.