

*Nova Southeastern University*  
*College of Engineering and Computing*  
*Fall 2019 - Master Level Course*  
*CISC 680 - Software Engineering - CRN – 21741*  
*Term Code: Fall 2019 (202020) Course*  
*Dates: 08/19/2019 - 12/08/2019 – On Line*

Please review Chapter 3 carefully, including the further readings and information sources.

Assignment Due date: Check class calendar

Project:

Using Agile Techniques, the students will design a Personal Environment Network. This will involve each student identifying and classifying which components need addressing and how, using Agile development, this will be achieved. The final outcomes of this will a document or documents addressing these components, (Communication, planning, modeling, construction and deployment).

Organization and Flow:

- Project planning
- Use case development
- Requirement gathering
- Rapid design
- Code generation
- Testing

Area of work:

Using Agile Techniques, the students will design a Personal Environment Network, This will involve discussion collaboration among the class students as they identify and classify which components need addressing and how, using Agile development, this will be achieved. The final outcomes of this will a document or documents addressing these components, (Communication, planning, modeling, construction and deployment).

The assignment will be further discussed during the lectures including time for students to discuss and work on the project.

Customer Requirements will be discussed in class

Overview:

A personal Environment Network is a network of ad-hoc device (cell phones or other WIFI wireless devices) that organize themselves into an active network to exchange information that is determined by each individual device.

The application that allows the information exchange is responsible for security, look and feel and protocol. The underlining communication protocol is also part of the application. Furthermore, the application is capable of routing thru a node to get a link to a node outside a original nodes transmission range.

These devices do not need any cell tower requirements, although it is possible.

According to Wikipedia these devices follow this definition:

A mobile ad hoc network (MANET), is a self-configuring infrastructure-less network of mobile devices connected by wireless links. ad hoc is Latin and means "for this purpose".

Each device in a MANET is free to move independently in any direction and will therefore change its links to other devices frequently. Each must forward traffic unrelated to its own use, and therefore be a router. The primary challenge in building a MANET is equipping each device to continuously maintain the information required to properly route traffic. Such networks may operate by themselves or may be connected to the larger Internet. MANETs are a kind of wireless ad hoc networks that usually has a routable networking environment on top of a Link Layer ad hoc network.

The growth of laptops and 802.11/Wi-Fi wireless networking have made MANETs a popular research topic since the mid-1990s. Many academic papers evaluate protocols and their abilities, assuming varying degrees of Mobility within a bounded space, usually with all nodes within a few hops of each other.

Different protocols are then evaluated based on measure such as the packet drop rate, the overhead introduced by the routing protocol, end-to-end packet delays, network throughput etc.

Use case:

The user of the device sets their device to accept information from:

- Friends
- Ads by category
- Classmates (for example course 680)
- Device specifications in stores
- Home appliance devices

Classification of some simple use cases:

- 1) Item identification and location
- 2) ad-hoc social networking
- 3) ad-hoc phone services (vs. cellular phone service)

Deliverables: will be discussed in the discussion