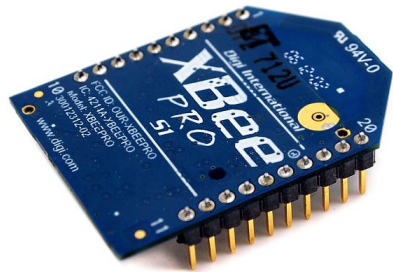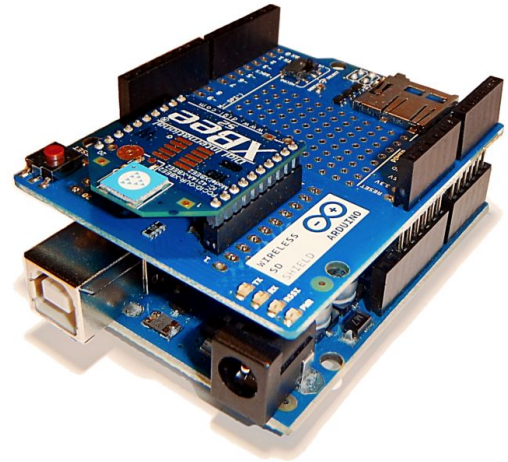# Networking

Preliminary Design Review Presentation

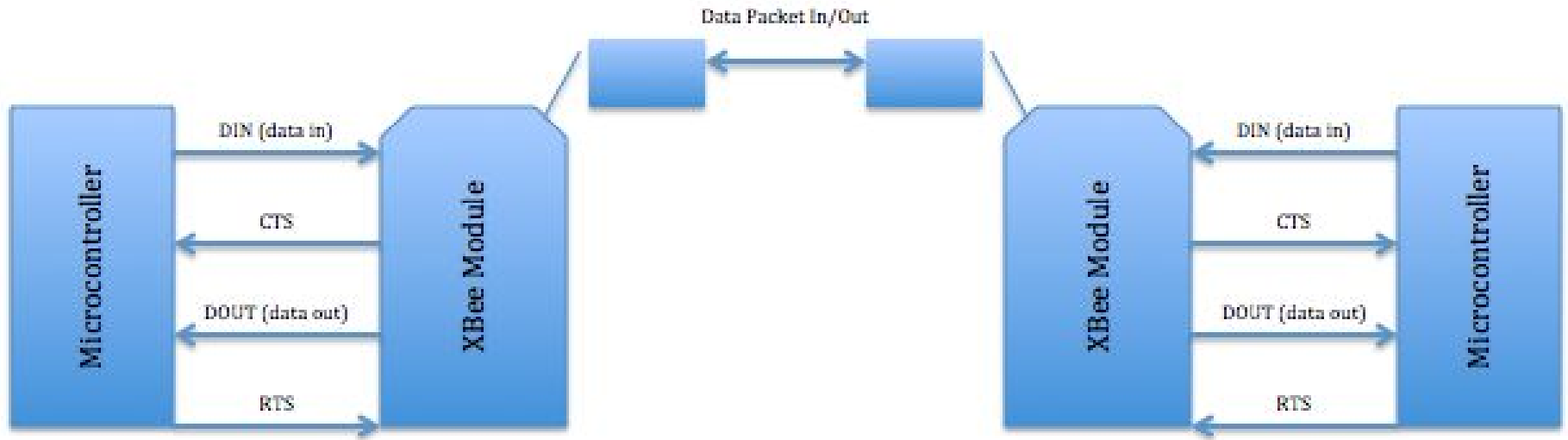Raydan Bala

Ernesto Lorenzo

Project Overview

- Physical and virtual network testing and simulation

- Create a test board for various XBee models

  - Reduce debugging process of other projects

- Test functionality

  - Communication

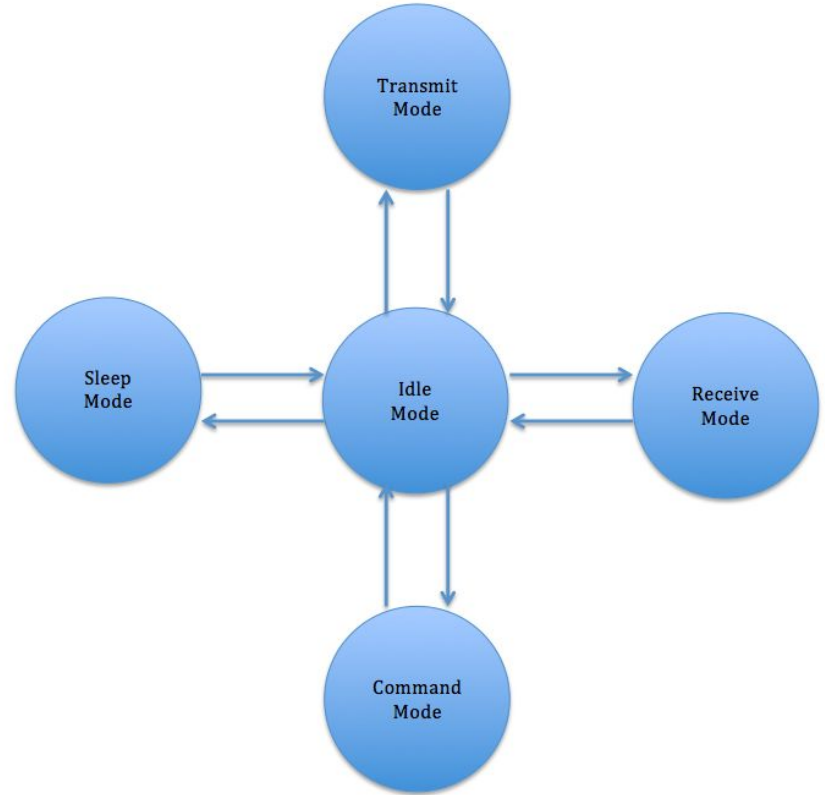 - Network of XBees

- Overall: become Experts on the part

Block Diagram

Modes of Operation

- **Idle Mode**
  - Not Receiving or Transmitting
- **Transmit/Receive Modes**
  - Transmit/Receive data packets
- **Sleep Mode**
  - Enter state of low-power consumption when not in use
- **Command Mode**
  - Incoming characters interpreted as commands

Progress

- Familiarization of tools
  - X-CTU
  - Arduino tutorials
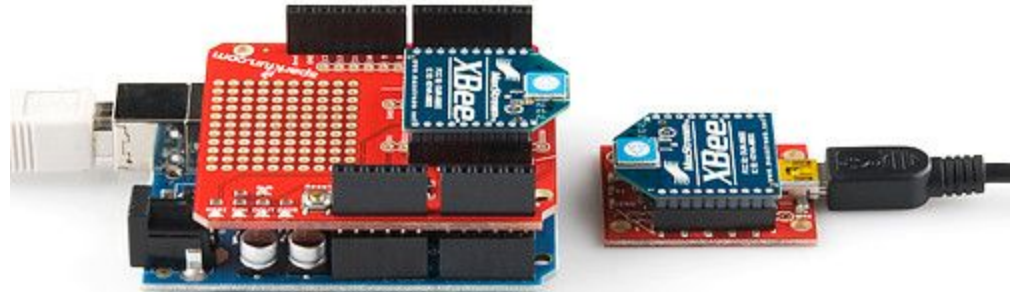- Communication between two XBees

Progress

- Orders of various XBees
  - Different models
    - ranges, capabilities, functions
- Learned how to create parts in EAGLE
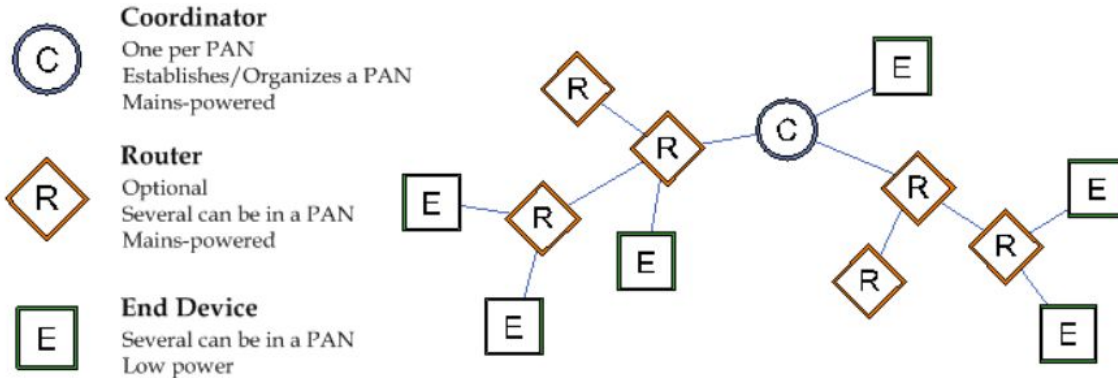 - Creating packages, device, and symbols

Obstacles and Difficulties

- Time management

- PCB design software

- Configuration of a network of XBees

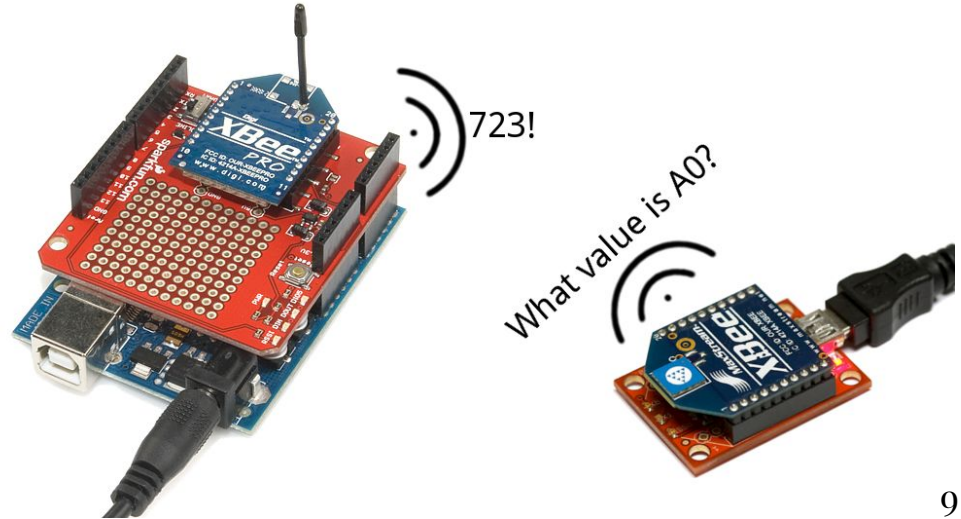# Remaining Tasks

- Networking XBees
  - Communication between various XBees
- PCB Design
  - Part, device, and symbol creation

Coordinator
One per PAN
Establishes/Organizes a PAN
Mains-powered

Router
Optional
Several can be in a PAN
Mains-powered

End Device
Several can be in a PAN
Low power

Remaining Tasks

- Testing
  - Range of communication
    - Through walls
    - Open space, outdoor, indoor
  - Comparison of XBee models
    - Test results
    - part specifications

723!

What value is A0?

Questions?

Works Cited

Website References:

http://ftp1.digi.com/support/documentation/90000976_W.pdf

Picture References:

http://www.seeedstudio.com/depot/images/product/XBee%20Pro%20PCB_01.jpg

https://www.arduino.cc/en/uploads/Guide/ArduinoUno_XBeeS2.png

https://cdn.sparkfun.com/assets/learn_tutorials/2/3/0/XBee-Pairs-plugged-in.jpg

https://cdn.sparkfun.com/assets/learn_tutorials/2/3/0/communication-example.png