

# Preliminary Design Review Presentation



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EE 496

Savath Saepoo



# Overview

- **Project Tasks**
- **Motivation and Goals**
- **System Data Flow Diagram**
- **Mode of Operations**
- **Progress**
- **Issues**
- **Remaining Tasks**

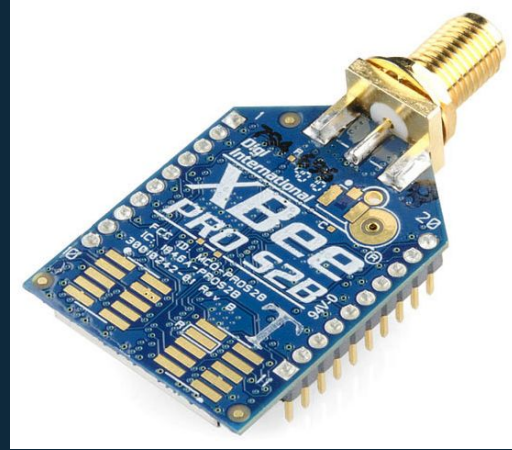




# Project Tasks

## Objective:

- Design, build and test two way communication using one Xbee
- Transmit and receive data simultaneously
- Improve scalability of previous design that uses two Xbees






# Motivation and Goals

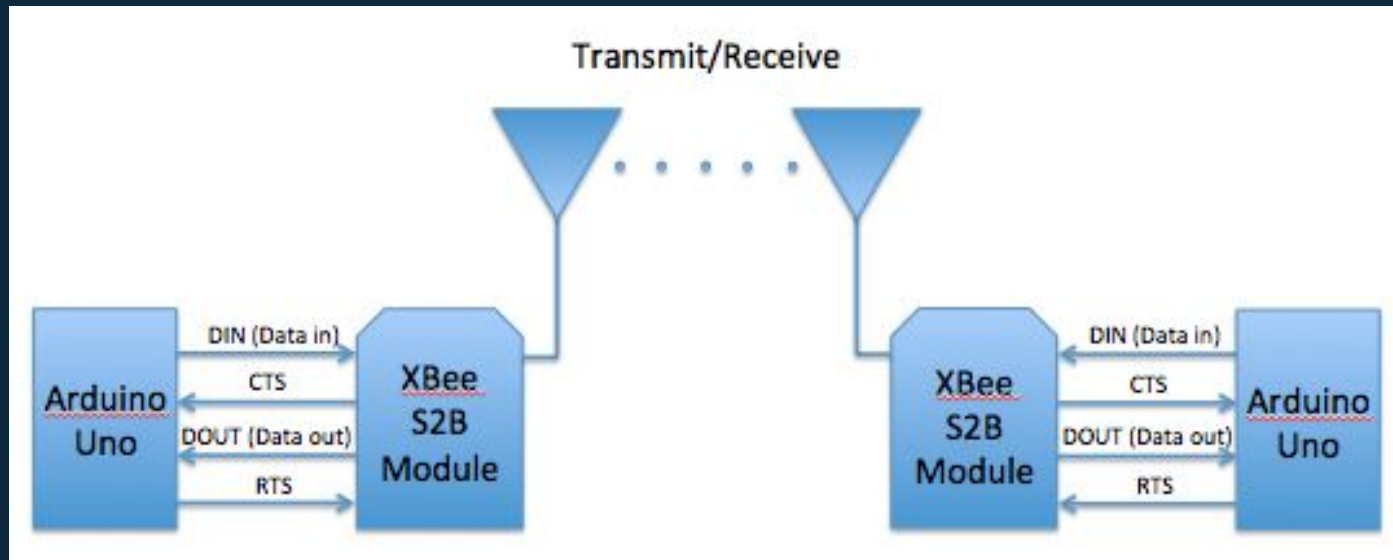
## Motivation:

- Extend communication range for weather boxes

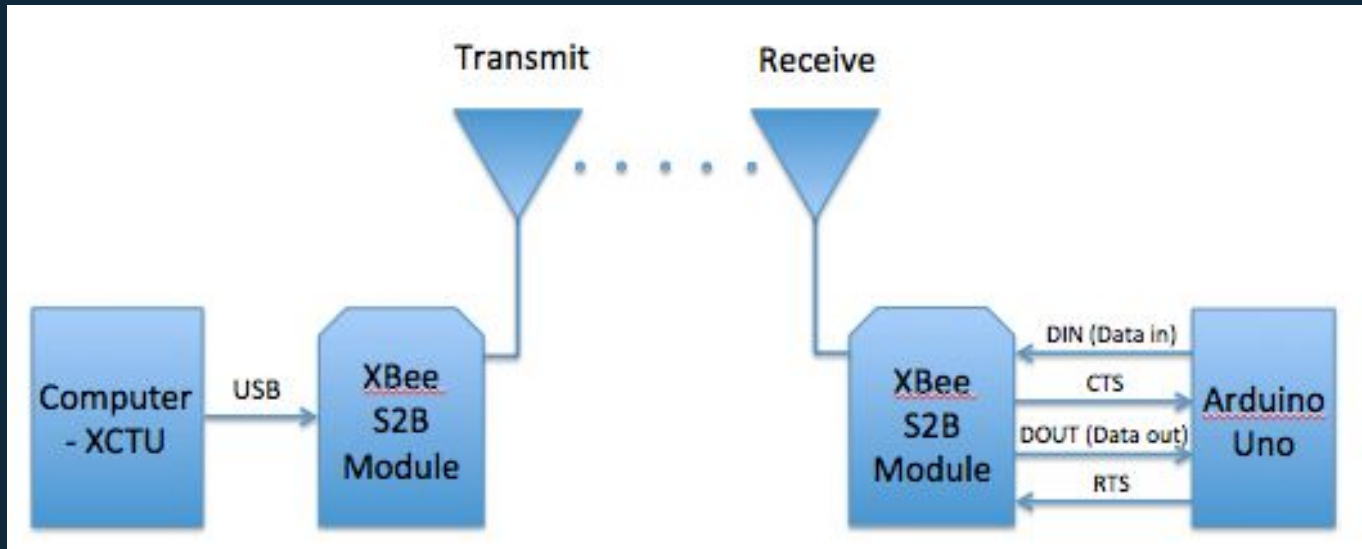
## Goals:

- Communication between weather boxes using one XBee
  - Conduct multiple tests under different weathers
  - Document final design, results, issues and solutions
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# System Data Flow Diagram



# System Data Flow Diagram



# Mode of Operations

- **Idle Mode:**

- Not receiving or transmitting data

- **Transmit/Receive Mode:**

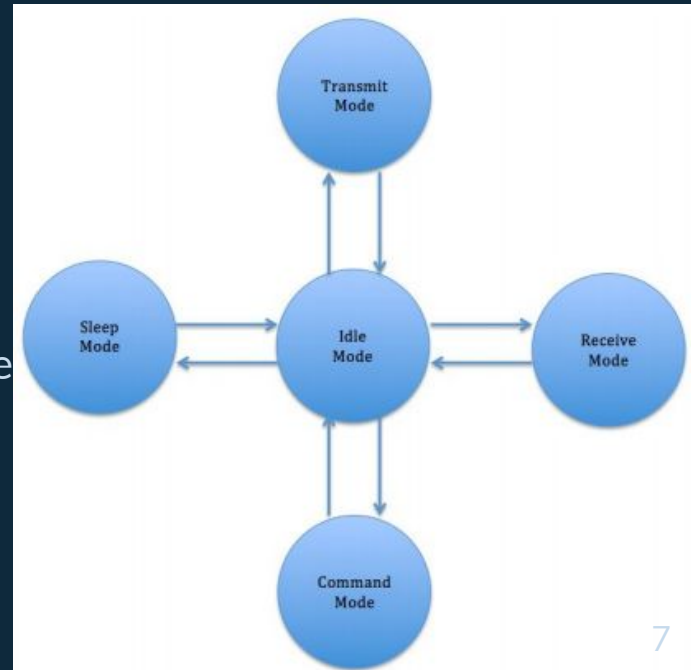
- Transmitting/Receiving data packets

- **Sleep Mode:**

- Entering state of lower power consumption when not in use

- **Command Mode:**

- Incoming characters interpreted as commands



# Progress

## ~~Phase 1: Design Preparation~~

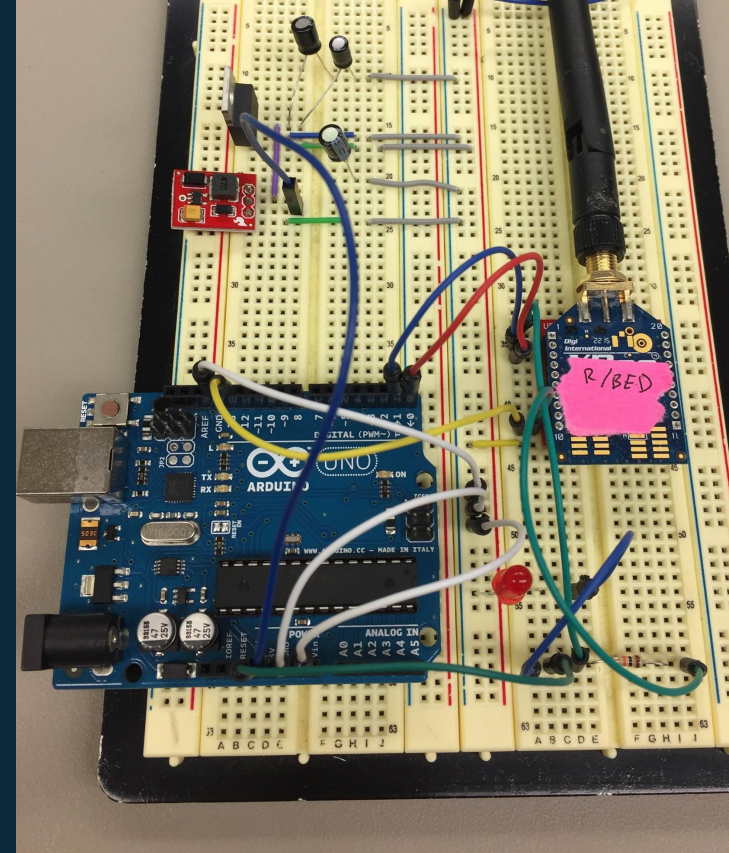
- ~~- Reading documentations, communication~~
- ~~- configuration of XBees~~

## Phase 2: Prototype

- ~~- Referencing Apple's design~~
- Testing design on breadboard
- Communication between coordinator XBee (XCTU) and router XBee (Breadboard)

## Phase 3: Final Design/Testing

- Transfer breadboard design onto PCB via EAGLE
- Two way communication testing







# Issues

- Router XBee (Breadboard) not connecting to XCTU





# Remaining Tasks

- Get router XBee (Breadboard) to connect and communicate with coordinator XBee (Computer)
- Two way communication using one XBee (Router XBee)
  - Testing
- Design on EAGLE and order PCB
  - Testing
- Housing





Any Questions?



# References

## Websites:

- <http://www.digi.com/products/xbee-rf-solutions/xctu-software/xctu>

## Images:

- <https://cdn.sparkfun.com//assets/parts/4/8/9/3/10419-01.jpg>