

# Sociable Objects

---

Instructor: Rob Faludi

# Introduction

---

- Sociable Objects
  - Connections are Collaboration
  - Networks
  - Mesh Networking
- Rob Faludi
  - Background
  - Motivations for this class

# Plan for Today

---

- Introductions
- Syllabus Review
- Warmup
- Math for Mesh
- Ordering XBees
- Readings & Assignments

# Introductions

---

- Name, graduation semester
- Projects from the last year
- What you'll do this summer
- What you wish you were doing this summer
- How you ended up in this class, hopes and plans

# Syllabus Review

---

- Syllabus review
  - Class schedule
  - Assignments
  - Documentation
  - Grading
  - Office Hours
  - Workshops

# Warmup

---

# Math for Mesh

---

- Binary, Decimal, Octal, Hexadecimal
  - Why?
    - Serial communication
    - XBee configuration
    - Programming helper
  - What?
    - It's all notation

# Decimal

---

- Place system
- Powers
- Adding and carries
- Finger counting, but is that base 10?



# Binary

---

- Place system
- Notation: %010 010b 0b10
- Powers
- Adding and carries
- Finger counting!

# Octal

---

- Place system
- Notation **073**
- Powers
- Adding and carries
- Finger counting, not really

# Hexadecimal

---

- Place system
- Notation: extra digits, 0x10, #FFFFFF
- Powers
- Adding and carries
- Finger counting?
- Switches yes: 0xFF = 1111 1111 and 0x3C = 0011 1100

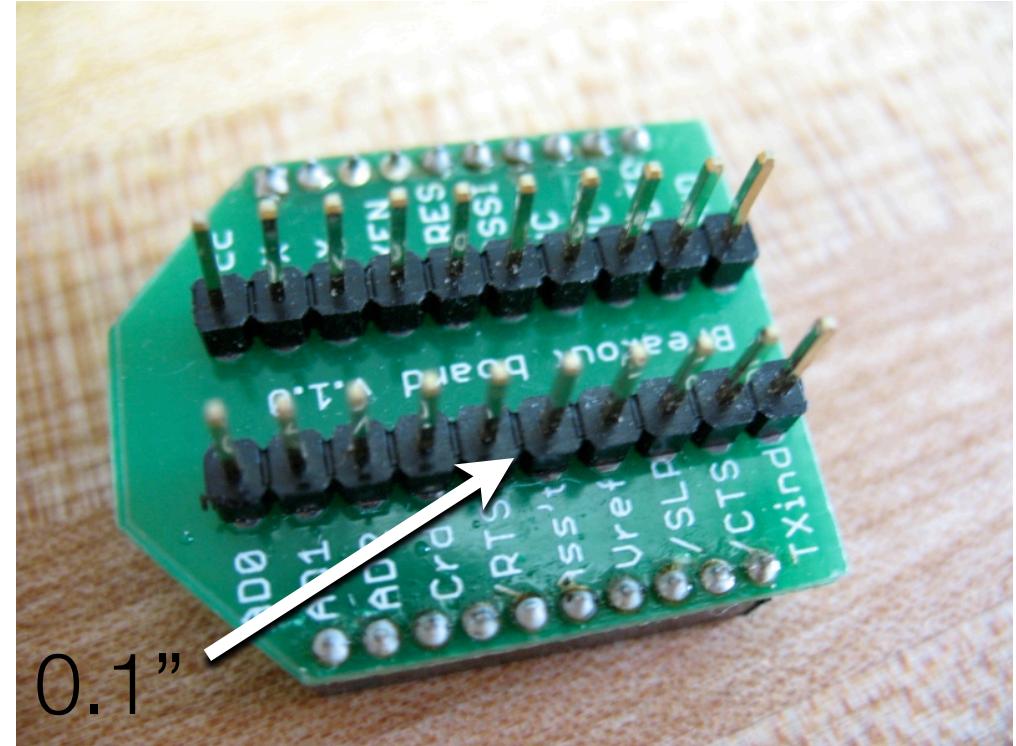
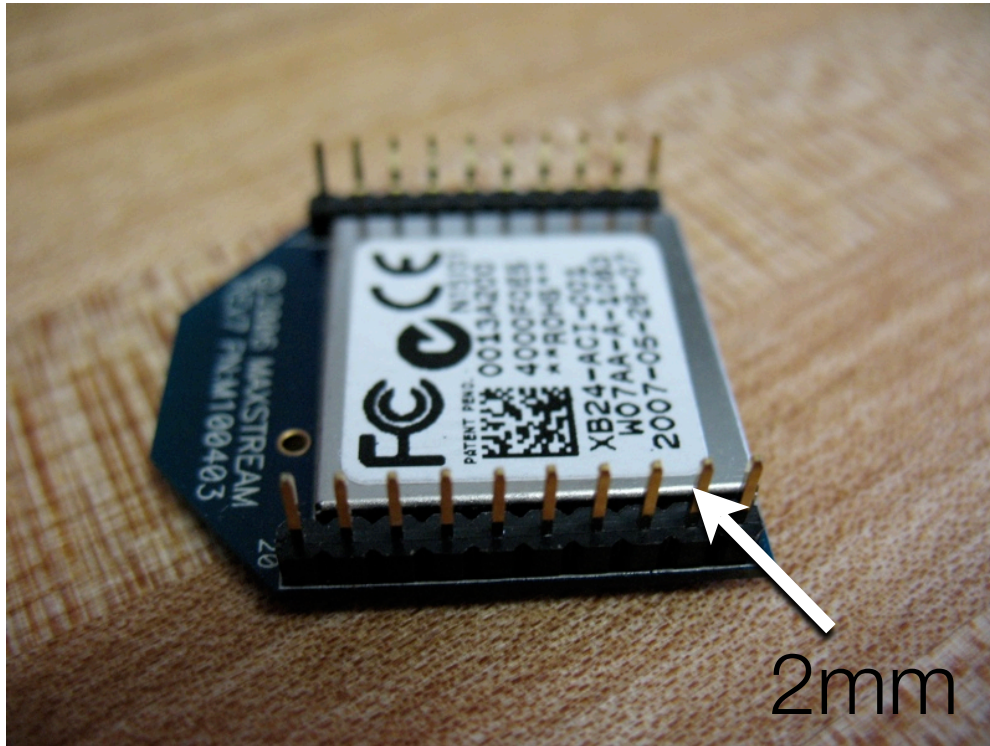
# Ordering XBees

---

- Regular / Pro, XBee Series 2
- Antennas
- Breakout boards, headers
- Dongles
- USB Serial adaptors, Spark Fun, Arduino
- Pick a PAN ID now and document it

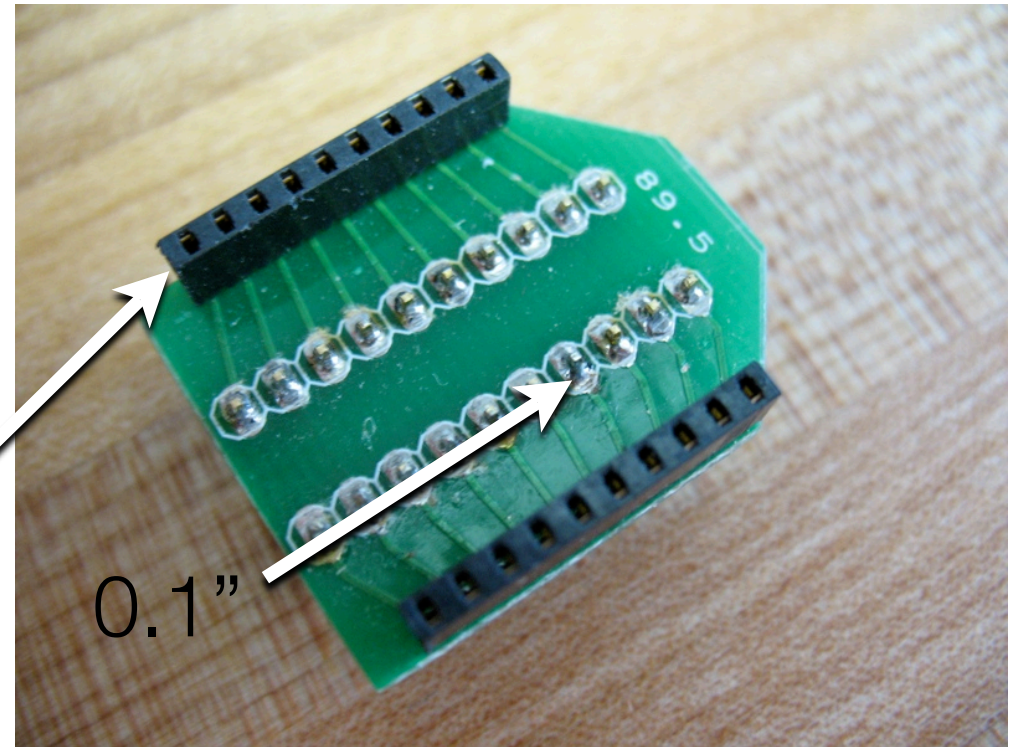
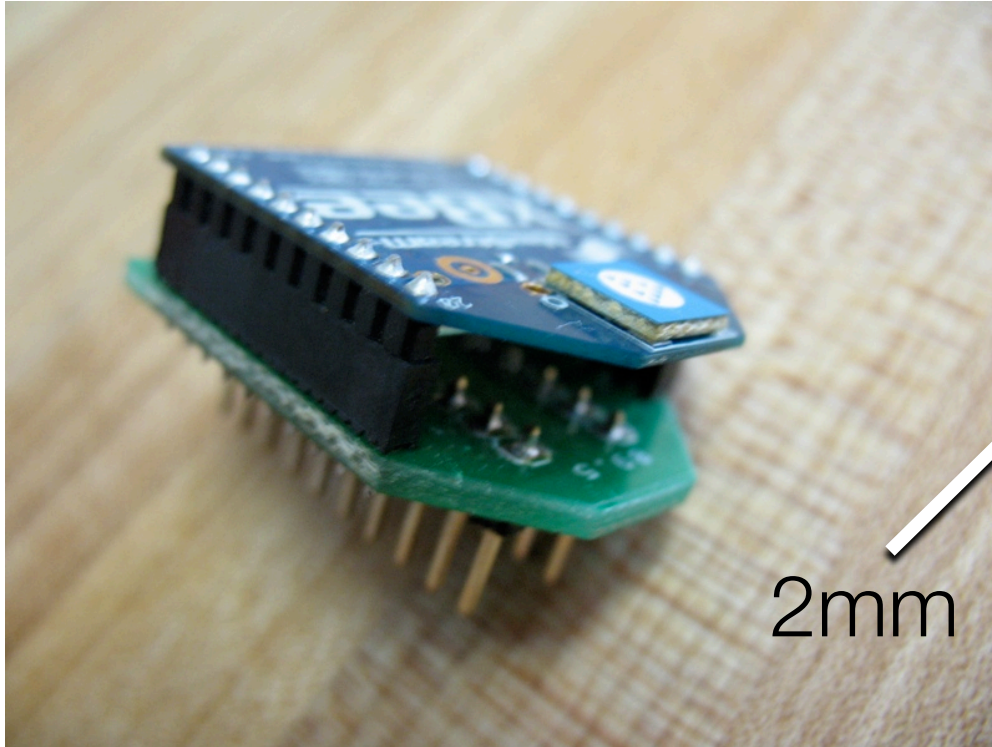
# Soldering Breakout Boards: pin spacing

---



# Soldering Breakout Boards: headers

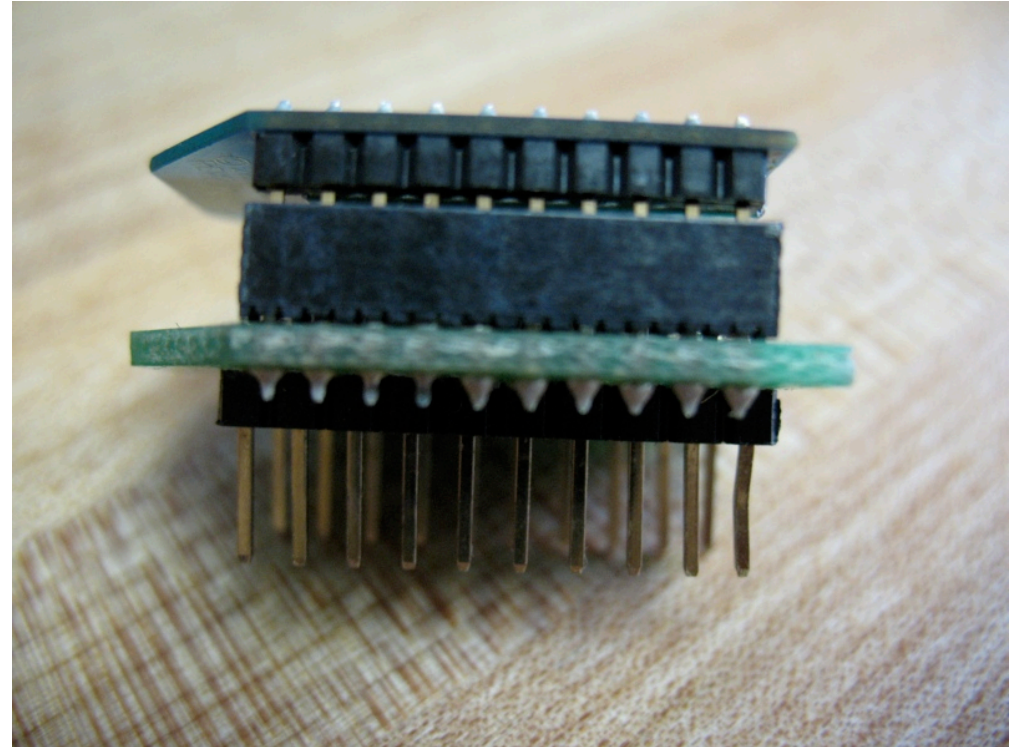
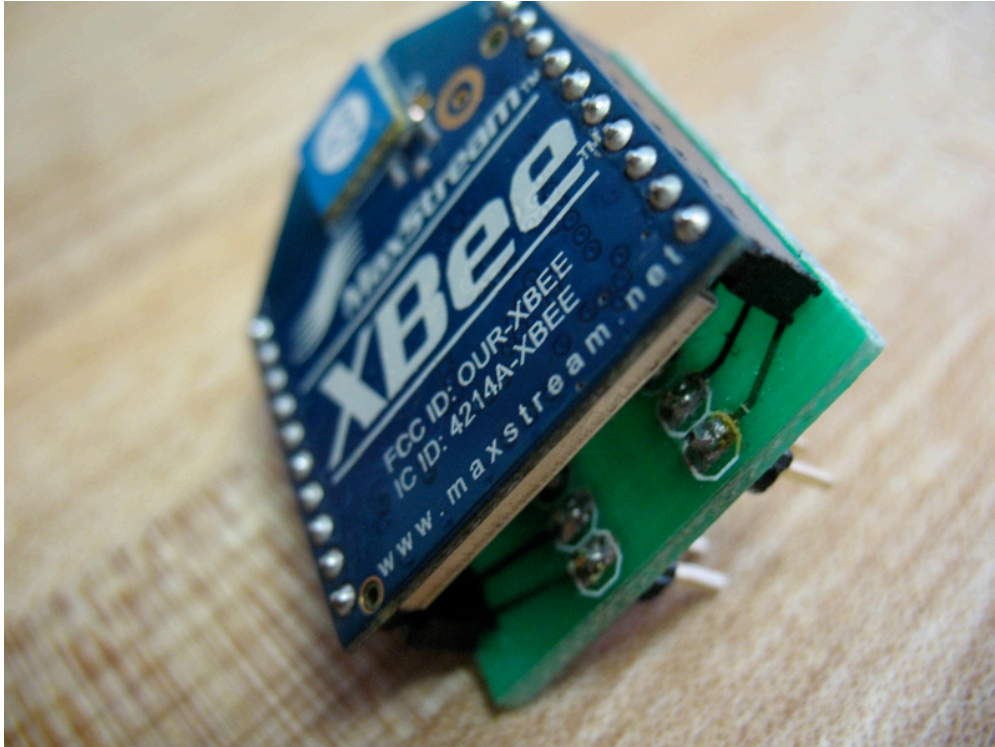
---





# Soldering Breakout Boards: finished

---



# Readings and Assignments

---

- Readings

- Economist articles: [http://rob.faludi.com/teaching/cmn/readings/Economist\\_Wireless\\_articles\\_2007-4-26.pdf](http://rob.faludi.com/teaching/cmn/readings/Economist_Wireless_articles_2007-4-26.pdf)
- Weiser, M. The Computer for the 21st Century: <http://www.ubiq.com/hypertext/weiser/SciAmDraft3.html>
- There Will Come Soft Rains – Bradbury: [http://rob.faludi.com/teaching/cmn/readings/Bradbury\\_Soft\\_Rains\\_1950.pdf](http://rob.faludi.com/teaching/cmn/readings/Bradbury_Soft_Rains_1950.pdf)

- Assignment

- Find & Fix