

# 95-733 Internet of Things

## Introduction to Course Structure

# Course Web Site

- <http://www.andrew.cmu.edu/~mm6>
- We will use Canvas for grades and project submission.
- We will use Piazza for our discussion board.
- Please use Piazza rather than email.
- GitHub has the bulk of the materials.
- <https://github.com/mm6/InternetOfThingsCourse>

# Prerequisites

- The ability to program.
- The willingness to explore new programming languages.
- Enthusiasm for programming
- Interested in IoT and Web technologies

# Quick list of topics

- Interaction patterns
- Node.js
- Node-RED
- JavaScript
- C++ for firmware
- Message Formats: JSON and perhaps JSON-LD
- AJAX, Websockets, Webhooks
- RESTful design
- HTTP, MQTT, XMPP, CoAp, Bluetooth Low Energy
- Microcontrollers (Particle Photon 2)
- Beacon technology (Ibeacon and Eddystone)
- Sensor Andrew and OpenChirp
- Security issues along the way

# Structure of the Course

- Lectures/class participation
- Readings mostly from primary sources, i.e., journal articles assigned
- Projects (programming)
- Quizzes at start of every other class.  
For next week, Quiz 1 covers "Enabling the Internet of Things" & "Smart Connected Products"
- Final examination covers the entire class

# Readings

- Readings from primary sources will be assigned each week.
- Optional readings:
  - Chapter 1 of “Building the Web of Things” book.  
Free at Manning:

<https://freecontent.manning.com/free-ebook-building-the-web-of-things/>

If you are new to web technologies, read the following

- “Programming the World Wide Web”, by Sebastia 8<sup>th</sup> ed. Chapters 1, 2 and 3.
- “Programming the World Wide Web”, 8<sup>th</sup> ed. chapters 4 and 5 on Javascript and Chapter 10 covers AJAX.
- W3C has plenty of web technology tutorials.

# Grading

- Homework/Programming (3) 40%
- It is fine to work with others or use a tool such as copilot. Be sure to understand the code that you submit. You will not have access to copilot when taking the exams or quizzes.
- Quizzes 15% (one low quiz score will be dropped)
- Final Exam 45%