

# 95-733 Internet of Things

## Introduction to Course Structure

# Course Web Site

- <http://www.andrew.cmu.edu/~mm6>
- We will also use Canvas for grades and project submission.
- We will use Piazza for our discussion board

# Prerequisites

- The ability to program.
- I will work from server side Java but you may work with other web platforms, e.g., Rails, Django or Node.
- Enthusiasm for programming
- Interested in IoT and Web technologies

# Quick list of topics

- Open JDK, IntelliJ, TomEE Plus
- Interaction patterns
- Java servlets
- JavaScript and Wiring (C++ extension)
- Message Formats: JSON, JSON-LD, HAL, and XML
- AJAX, Websockets, Webhooks
- RESTful design
- HTTP, MQTT, XMPP, CoAp, Bluetooth Low Energy, Edge Analytics using Apache Edgent
- Microcontrollers (Particle Argon)
- Beacon technology (Ibeacon and Eddystone)
- OpenChirp <https://github.com/OpenChirp/docs/wiki>
- 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 class. For next week, Quiz 1 covers "Enabling the Internet of Things".
- Final examination covers the entire class

# Readings

- Readings from primary sources will be assigned
- If you are new to web technologies, read the following chapters from the text or work with Lynda (now LinkedIn) video training.
- For this week read “Programming the World Wide Web”, by Sebesta 8<sup>th</sup> ed. Chapters 1, 2 and 3.
- For next week read “Programming the World Wide Web”, 8<sup>th</sup> ed. chapters 4, 5 and 10.
- Chapters 4 and 5 are on JavaScript
- Chapter 10 covers AJAX.
- Read Chapter 1 of “Building the Web of Things” book.
- **Whether you are new or not, read the article by Philip McCarthy of IBM on AJAX**
- **Watch the video from Oracle on Websockets (see the course schedule).**
- **Get the websocket code running on IntelliJ/Tom EE.**

# Grading

- Homework/Programming (3) 60%
- Quizzes 15% (one low quiz score will be dropped)
- Final Exam 25%