Midterm Exam Review

CSE 132

Logistics and Style

- Date and Time
  - Mar 3, evening, Lab Sciences 300
  - 6:30pm to 8:30pm, starting right at 6:30!
- Questions
  - Question 1 will be a collection of short answer things (e.g., true/false, fill in the blank, quick definition)
  - Questions 2 through N will be longer (going more in depth on a particular subject)
- One-page "cheat sheet" is allowed
  - 8.5 x 11 sheet, front and back, whatever you want to include (content-wise)

Command Line

- Directories and their notation
- Navigation
  - ls
  - cd
  - mkdir
- Source control
  - Function of a repository
  - Checkout, update, commit

Programming When Time Matters

- Simple delays
  - Advantages and disadvantages
  - How to program
- Delta time
  - When it really matters
  - Advantages and disadvantages
  - How to program

Input and Output

- Analog Input
  - Linear calibration, scaling, units, ranges
  - Simple filtering
- Digital Output
  - Meaning, polarity
- Analog Output
  - Pulse width modulation operation
  - Scaling, units, ranges

Information Representation

- Number systems
  - Binary, two's complement, hex – conversions
  - Other negative representations
  - Fixed point – Q notation
  - Floating point – definitions
- Text representations
  - ASCII (if you need ASCII table, I will provide it)
  - UTF (-8, -16, -32)

Communication Protocols

- Java Streams
  - InputStream, DataInputStream, OutputStream, DataOutputStream
  - Wrapping Streams
- Information representation
  - In Java vs. in Arduino C vs. in protocol
  - Integers, characters, strings
- Protocol design
  - Magic numbers, error recovery, keys

Practicalities

- How to use development environment(s)
- Commonly used library functionality
  - Controlling pins (in and out)
  - Printing to attached PC
  - Timing
- Details of Arduino C language
  - Standard data types
  - Similarities and differences relative to Java
  - Bit-level and logical manipulation