Midterm Preparation

Questions?

Information Sources

- In-class exercises
- Zyante book
- Linked web pages
- Lecture notes
- Prior exams
  - Available in the “prior classes” section of my home page

Exam Parameters

- Closed notes, books, electronic devices
  - Exception: one page of personal notes
- Multiple choice
  - Can grade your exam as you leave
- Pick your favorite seat

Number Representations

- Conversion between binary and:
  - Decimal
  - Hexadecimal
- Bit-wise operations: &, |, ~, ^

Arithmetic

- Shifting left/right (multiplication/division by 2)

Teensy Digital Input/Output

How to use:

- GPIOx_PDDR
- GPIOx_PDOR
- GPIOx_PDIR

Circuits

- Resistors
- Diodes
- Analog comparators
- Switches

Moving Between Analog and Digital

Digital to Analog:

- Resistive network

Analog to Digital:

- Flash ADC (with analog comparators)
- Successive approximation

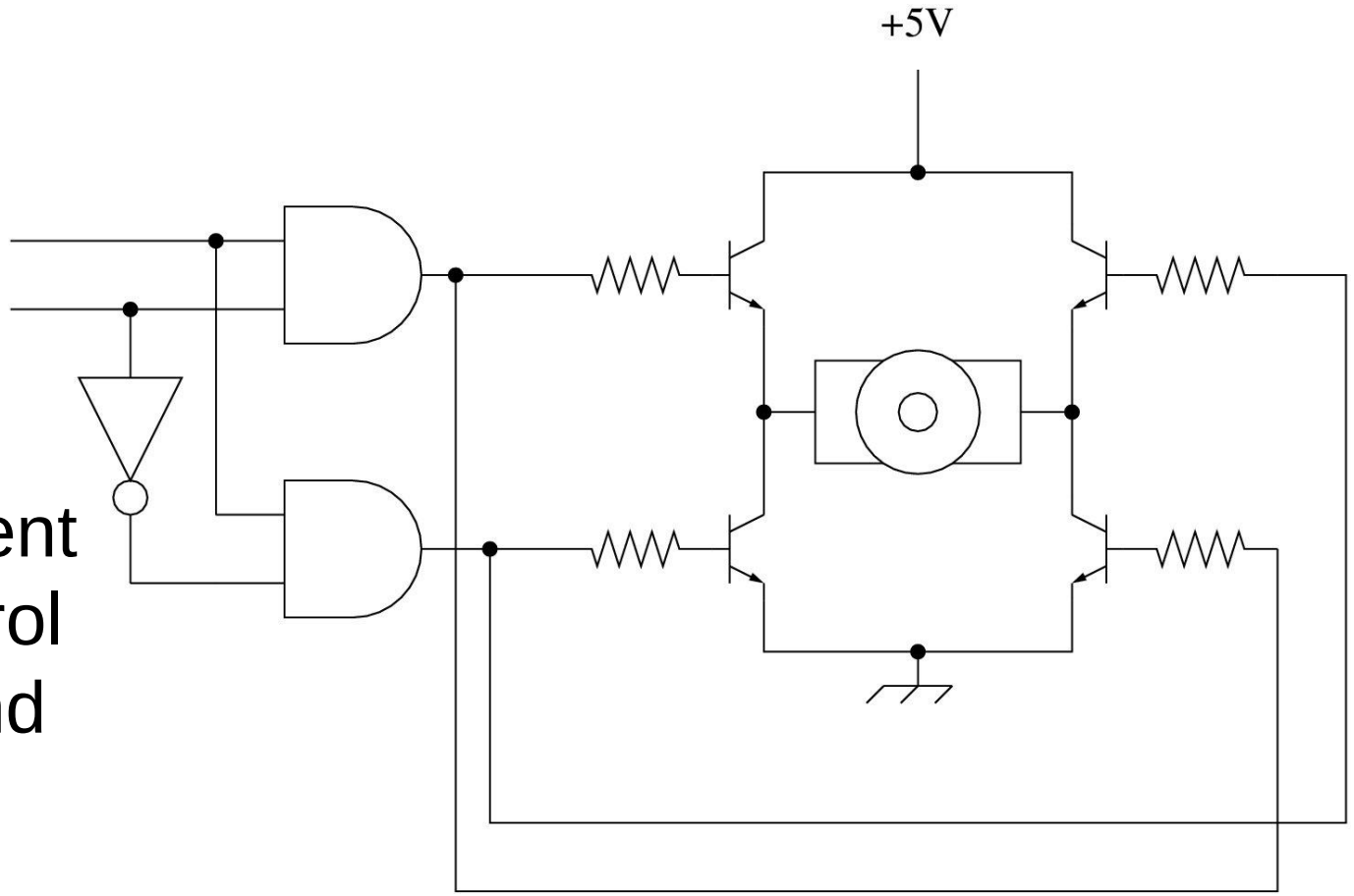
Motor Control

- H-bridges
- Pulse-width modulation

PWM and Direction Control

Direction

Two low-current inputs control direction and torque magnitude



Coding

Possible:

- What does this program do?
- This program is supposed to do X – where are the bugs?

Not on the exam:

- Given a problem, write code to solve it

Finite State Machines

The basics may appear. Given a finite state machine, what happens when a sequence of inputs is received?

- What is the state after the sequence of inputs?
- What is output by the FSM?

Not on this exam…

- FSMs in code
- Negative numbers
- Serial communication