# Project 2: Pulse-Width Modulation

# Questions?

# Project 1

- Finish today
- Catme surveys are due on Tuesday
  - Everyone should have received email already
  - Without the survey, you will not receive a grade

# Project 1

What are the lessons?

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- LED direction matters
- A resistance must be in series with an LED
- Follow the specification

# Project 1

What are the lessons?

- Code modularity
  - Small bite-sized chunk easier to code, test and communicate
  - If designed right, a function will be useful in other contexts
- Functional modularity
  - One function responsible for manipulating the pins for one display (and no more)

# Project 2: Pulse-Width Modulation

- This week: LED control
- Next week (project 3): fan control

# Component 1: Circuit

- Identify a timer to use (x=1,3,4 or 5)
- Wire in 3 temporary LEDs to OCxA, OCxB ad OCxC (through resistors)

# Component 2: Interface Functions

```
int16_t clip(int16_t value, int16_t min_value,
             int16_t max_value)

void set_led0_magnitude(int16_t magnitude)
void set_led1_magnitude(int16_t magnitude)
void set_led2_magnitude(int16_t magnitude)
```

# Component 3: Test Function

main():

- Ramp the LED magnitudes up and down slowly
- The LED patterns must not be completely synchronized

# Notes

- Make sure that each function that you implement does exactly what the specification says & no more

- Subversion server should be up soon

# Next Time

Project 2: Digital-to-Analog conversion