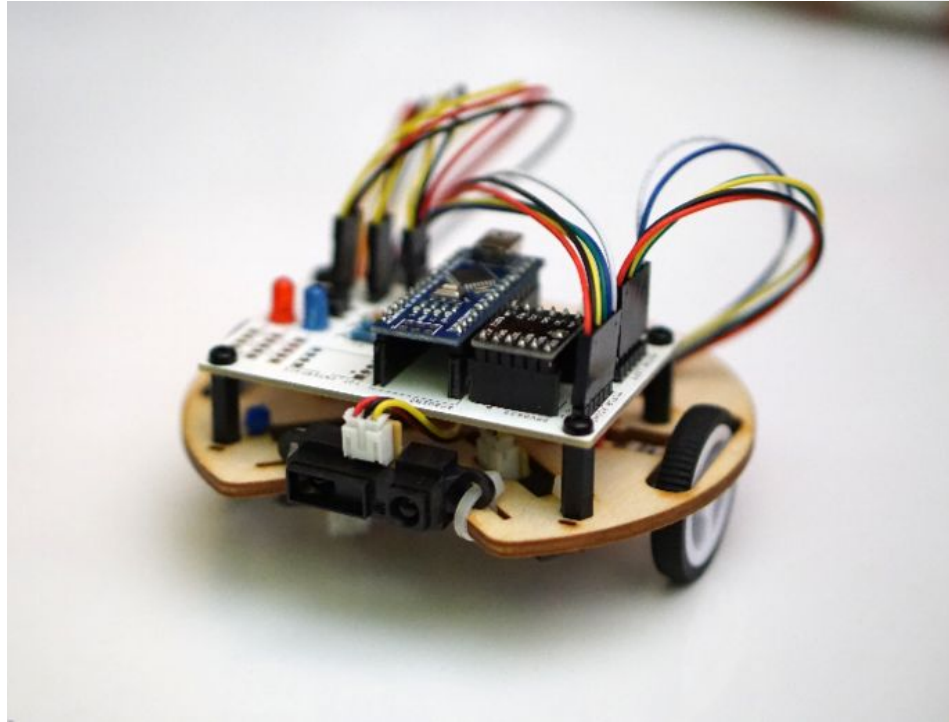


# IEEE Micromouse DeCal

*Week 1*

# Micromouse Hardware Kit



# Micromouse Electronics

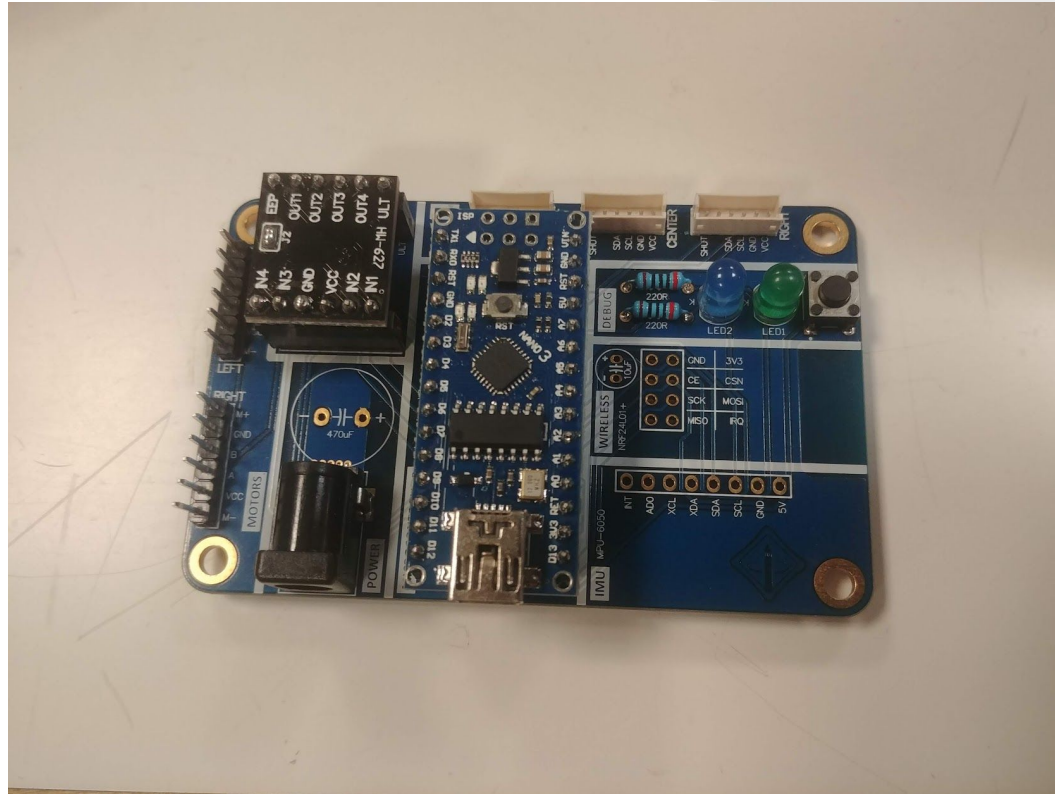
What electronics do we need to control our robot?

# Micromouse Electronics

What electronics do we need to control our robot?

- Microcontroller
- Motor drivers
- Motors
- Sensors (distance, velocity)
- Battery

# Micromouse PCB



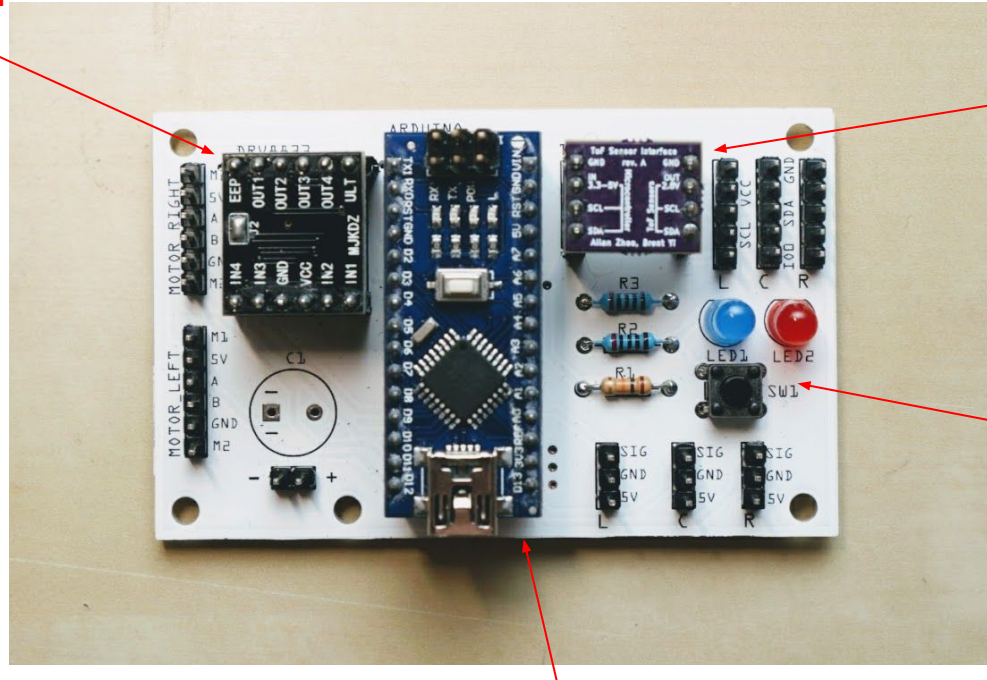
# Micromouse PCB Parts

Motor Driver

Sensor Interface

Debug LEDs & User Input

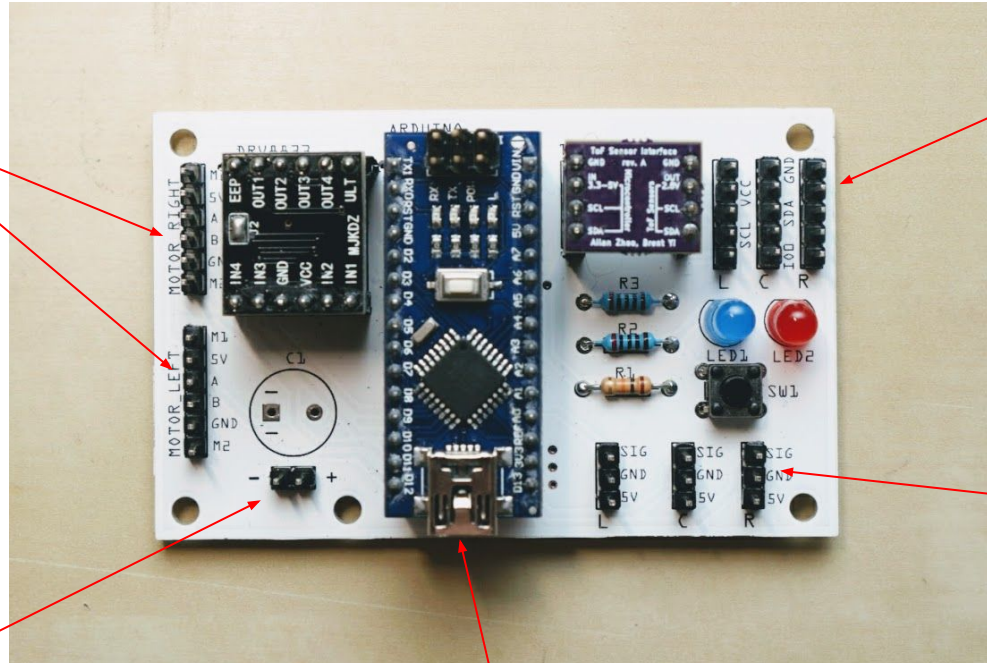
Arduino Microcontroller



# Micromouse PCB Connectors

Motor  
connectors

Time-of-flight  
distance sensors

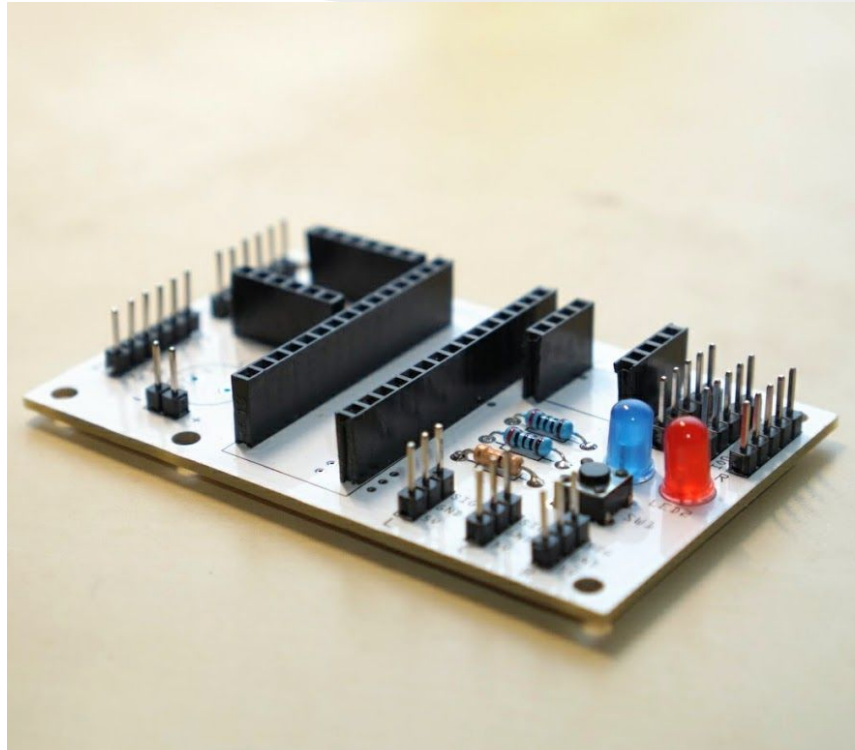
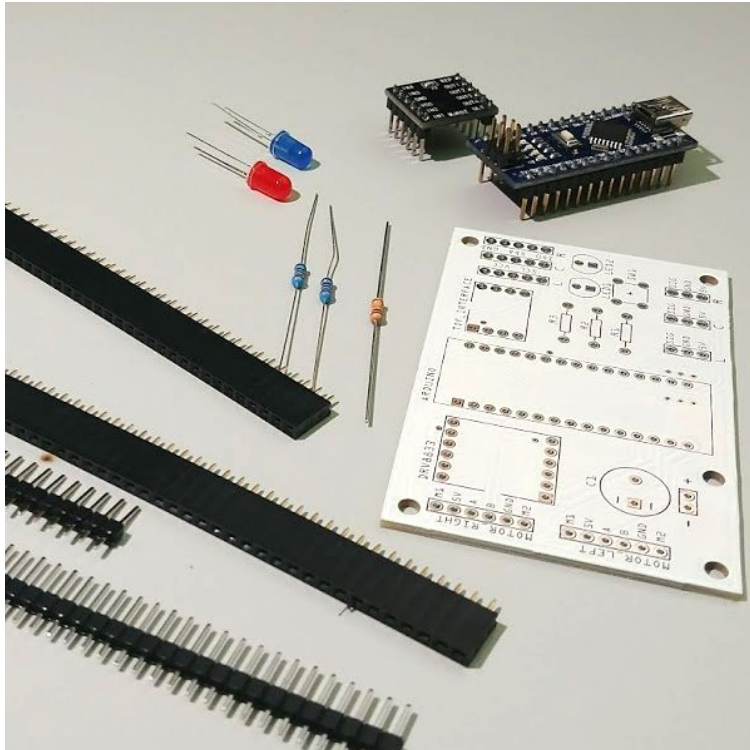


Power/Battery

Programming USB

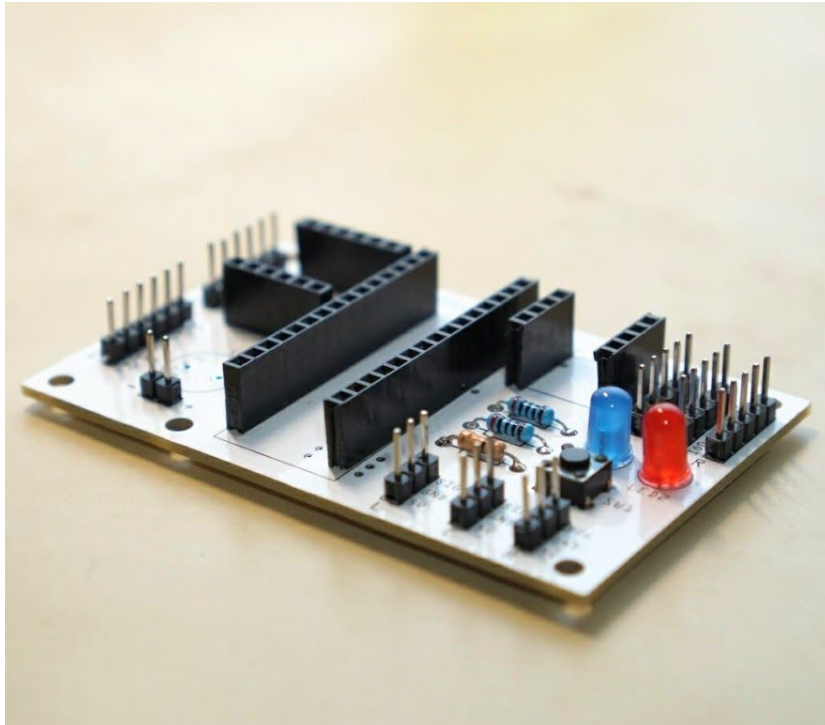


# Soldering & Arduino!





# Soldering & Arduino!

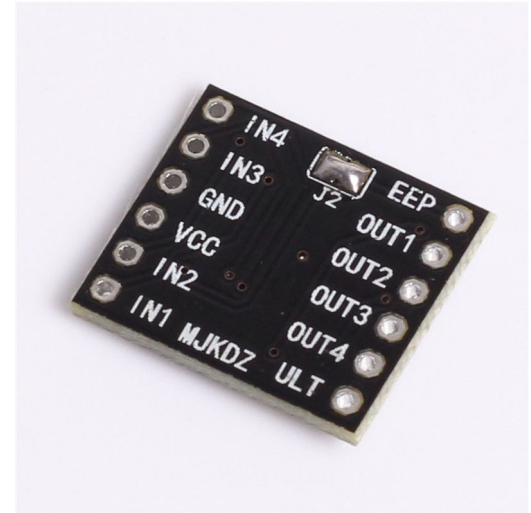


- Lab link on bCourses
- Soldering tips
  - Don't touch the hot part of the iron, it's hot
  - Pay attention to LED direction
    - Flat sides should line up
  - Insert modules into headers before soldering headers
  - Hold parts in with tape!

# Motor Driver

Why do we need a motor driver?

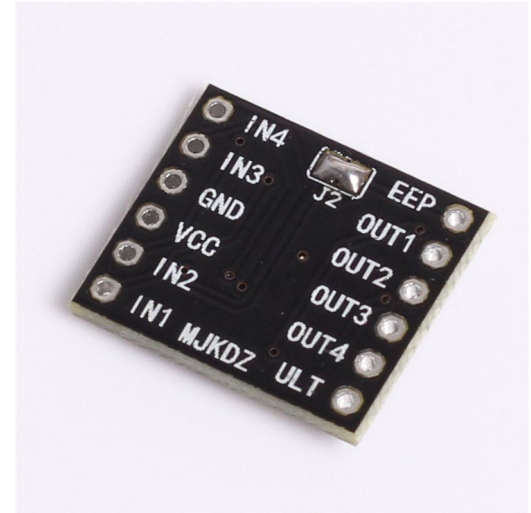
- Why can't we drive motors directly from our Arduino?



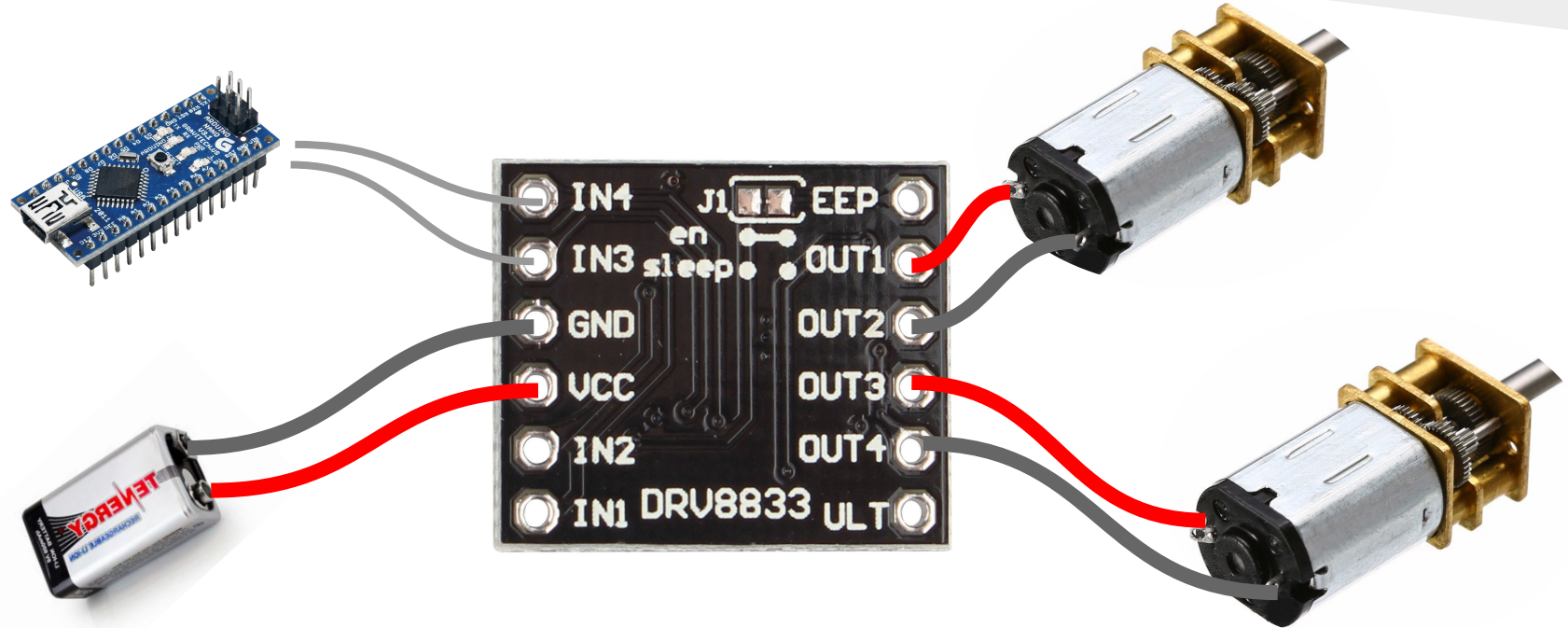
# Motor Driver

## Why do we need a motor driver?

- Why can't we drive motors directly from our Arduino?
- It's designed to only do logic -- the pins aren't able to supply enough current



# Motor Driver



# Motor Driver

Direction	IN3	IN4
Forward	HIGH	LOW
Reverse	LOW	HIGH

