

# Prototyping?

2016-2017  
4-H Exploding Bacon



# Today's overview

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1902**

- » Prototyping goals
- » Prototyping materials
- » Things we will have
- » Speed prototyping
- » What is iteration
- » How to iterate well
- » Subsystem design process

# Prototyping goals

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- » Get critical dimensions for final design
- » Find best materials and actuators to use
- » Find and eliminate failure points
- » Figure out how mechanisms will interact
- » Do this quickly, in 6 weeks time is imperative!

# Prototyping materials

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- » Old robot parts, especially premade bearing holes
- » Wood, metal tubing
- » For early power, drills are useful
- » For later power versa planetaries are good to use
- » Pvc rollers, hexed wheels, hex shaft with material on it.

# Speed Prototyping

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- » Only prototype what you want to work
- » Eliminate ineffective designs
- » Get to point of being able to do small iterations

# What is Iteration

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- » Making small improvements to a design
- » Small changes over time lead to big positive improvements
- » Never stop iterating, most great teams don't have their final robot till champs
- » Having a practice robot makes this easier/safer

# How to iterate well

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- » Make a change, for example, grippier intake material
- » If that leads to a better intake, continue making changes down that path, and looking for improvements
- » If a change starts yielding negative improvements then go back the other direction and try to find an optimal point

# Subsystem Design

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- » Each subsystem will go through its design process
- » Start with research into past similar mechanisms
- » Keep design specs in mind