

Week 4

Prof. Jamie Paik
Reconfigurable Robotics Laboratory
EPFL, Switzerland

By now: fully polished idea

- **Narrow down from 3 ideas**
 - Further define the previous three questions
 - Need
 - Novelty
 - Solution
- **Quantify the metric**
 - Describe the sustainability of your idea in a **quantifiable** way, think of the 6 Rs;
 - Scope;
- **Approaches**
 - Sensors and designs;
 - How to close the loop?
 - Is it doable in 10 weeks with a reasonable cost?

By now : quantified and found/ defined benchmarks

Fit into 6 Rs

- **Recycle**
 - Recycling Rate: Mechanical engineers can design products for easier disassembly, repair, and recycling, improving the overall recyclability of materials.
 - Recycle the resource
 - Energy
 - Water
 - ...
- **Repair**
 - Interchangeable design that can be easily repaired?
 - Easily disassemble?

By now : quantified and found/ defined benchmarks

Fit into 6 Rs

- **Reuse**
 - Parts/materials that can be disassembled and reused for other devices?
 - Parts/materials are directly reused from other machines?
 - Modular design that can be reused directly for other functions?
- **Reduce**
 - Improved design to reduce the use of materials?
 - Reduce the environment impact?
 - Energy usage
 - Toxic pollutions
 - Noise emissions
- **Refuse**
 - Robust design that can last longer?
 - Lifecycle improving?

By now : quantified and found/ defined benchmarks

Fit into 6 Rs

- **Rethink**
 - For a greater good
 - Human health impact
 - Fair Labor
 - Society / culture impact
 - ...

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By next week

- Slide 1: clear statement of the scenario i) need ii) novelty of your design in comparison to the state of the art iii) impact of the produce

By next week

- Slide 2: Define at least three R categories and create engineering specifications with numbers (with a specific range that fits your application) – create a table.

R category	Engineering specification	values	Solution A	Solution B	Solution C
Reuse for 3 applications require large range of motion ie Watering & cat feed	Range of motion	end effector hinge range Vertical displacement Personalization etc			
Reduce – more payload to reduce the size of the links	Overall payload	Vertical / dynamic /continuous load etc			
Refuse – bandwidth is higher to be effective in ...	Bandwidth	motor bandwidth Control bandwidth Feedback speed etc			

By next week

Slide 3: three solution directions (some sketches with the chosen actuator and sensor)

- → show how they are all satisfying the motivation and functionality of the proposed product

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