

INNOGATORS



Design Thinking 101

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Agenda

- Introduction to InnoGators
- Learning the Engineering Design Process
- The Design Process in Action
- How does this relate to Industry?
- Kahoot
- Challenge Presentation
- Q+A

Icebreaker



- Say your name, year, major, and your quarantine plans
- Call on someone else to speak after you

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“

*To create a space of
innovation and collaboration
by inviting culturally diverse
minds and talents to
influence the engineering
design experience*

”

What is InnoGators

- Design team focused on the journey and not the destination
- Work on interdisciplinary projects while strengthening your respective skillset
- Big focus on learning and building community

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TJ Thomas
President



Keri-Anne Lue
Vice President



Jenna Scott
Secretary



Logan Hickox
Mechanical Lead



Bryce Herrera
Electrical Lead



Keanu Budham
Software Lead

Current Projects

Smart Grinder

- Developing an automated grinding system to aid in the recycling process for waste 3D printed parts and filament.



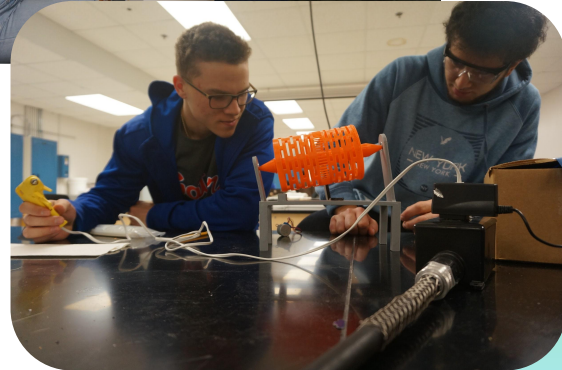
Drone Project

- With this project, we are programming a DJI Tello drone to fly a predetermined course in preparation for the SkillsUSA drone competition that is in the works.

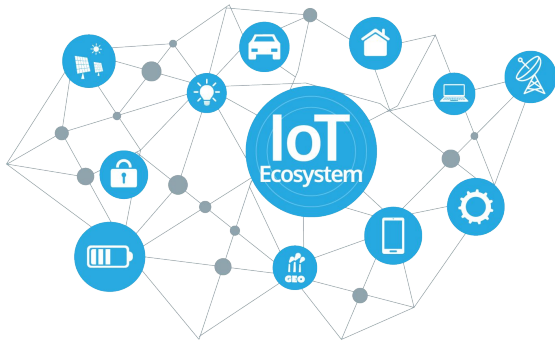


How to Get Involved

- Follow the flowchart on www.innogators.weebly.com
- Submit an interest form
- Follow us on socials @innogators
- Join the slack and trello
- Take initiative at meetings



Summer Workshop Series



IoT Workshop

July 16



Professional Development

August 14



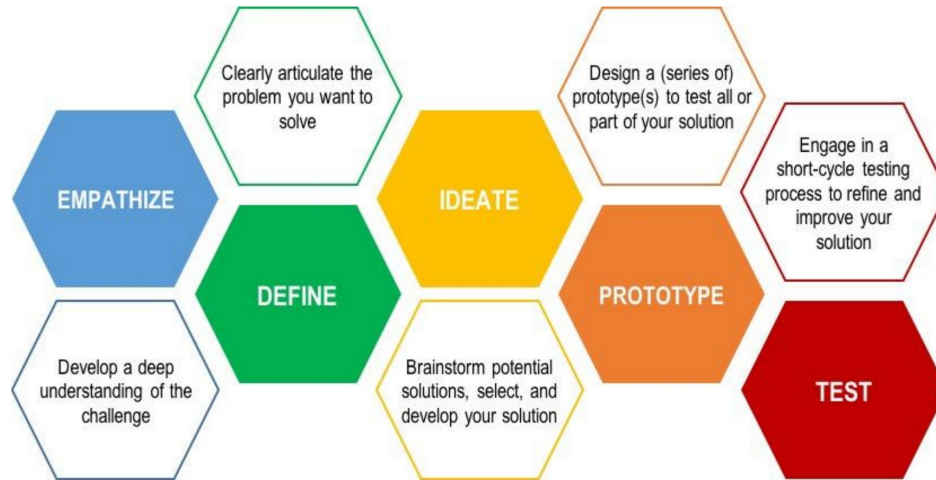
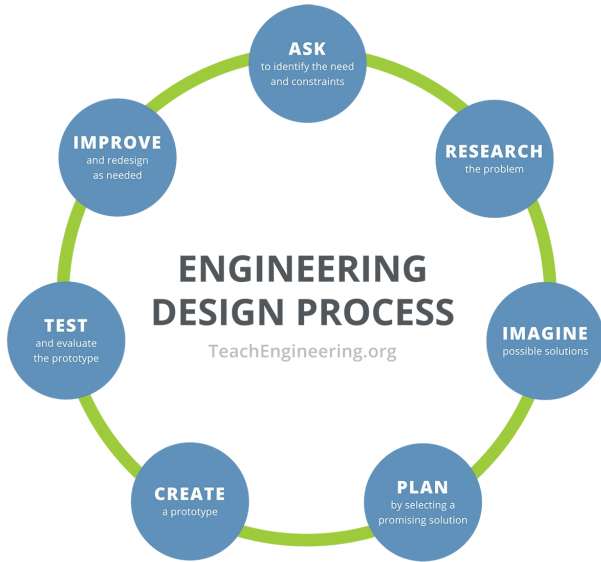
Design Thinking

And how to use it to make cool stuff

What is Design Thinking?

- A design methodology that provides a **need-based** solution to problem
- Useful for tackling complex or unknown problems by
 - Focusing on user's needs and experiences
 - Emphasizing hands-on prototyping
 - Extensive ideating sessions

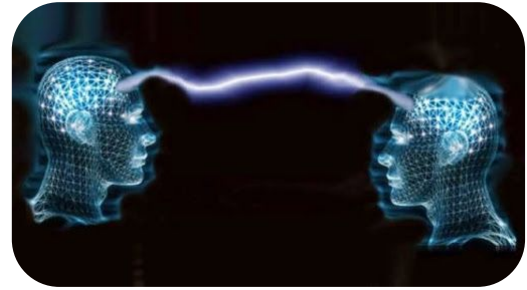
Different Approaches



All methods are nonlinear!!

Empathizing with the User

- Most important part of the process!
- Make an effort to understand the user
 - What motivates them?
 - What are their pain points?
 - What are their physical and emotional needs?
- Gives you insights into their lives which can be useful in developing a solution



How do you Empathize?

Observe



Engage



Listen

Building your Team

- Build a **diverse** team
- Ex: Floridians and snowmobiles
- Make sure everyone is invested in the problem



Diversity of

- Thought
- Background
- Skill-sets
- Majors
- Work Styles

Define the Problem

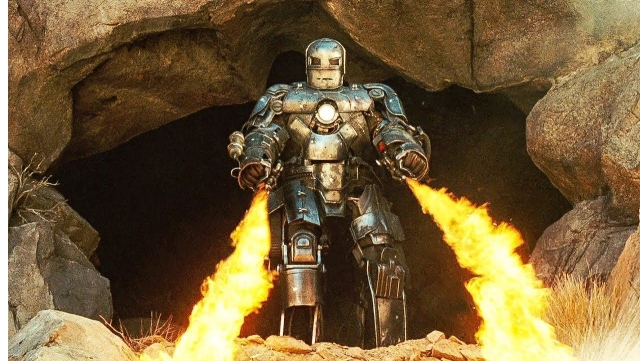
- Accumulate all the information from the empathizing section and **define the problem**
- Determine what the root issue of the user is
- From the problem, a need statement can be developed
- Need Statement \neq Problem Statement

Need vs. Problem



Problem

Iron Man is stuck in a cave

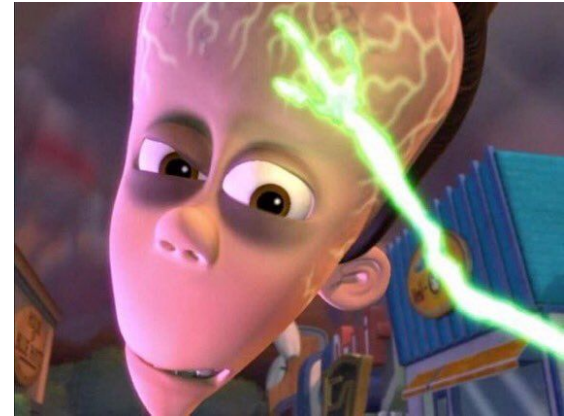


Need

Iron Man needs a way out
of the cave

Ideate

- Transition from defining the problem to developing a solution
- Come up a bunch of ideas with **no limit on creativity**
- Harness the differing perspectives of your team

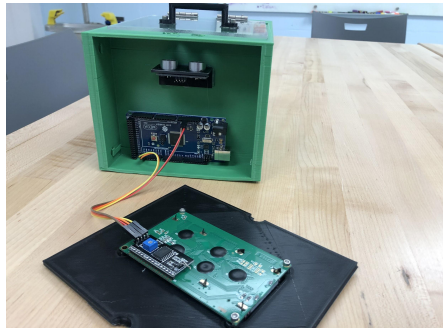
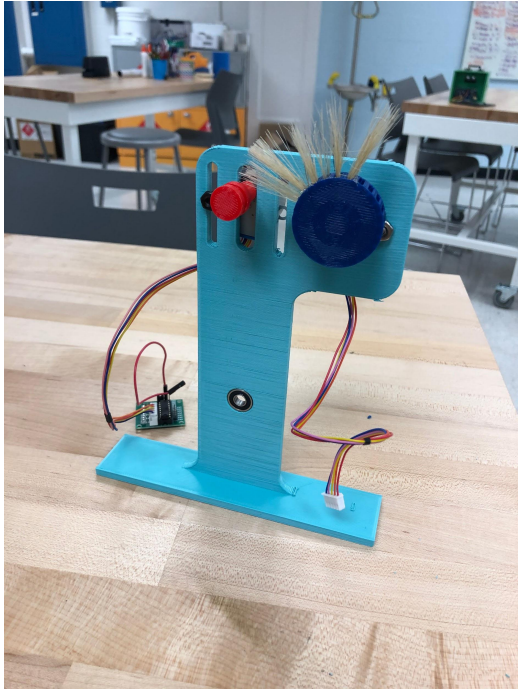


How do you Ideate?

- Have a strategy
- Build off of other's ideas
- Determine constraints
- Put yourself in an innovative environment
- Separate generation of ideas from evaluation of ideas

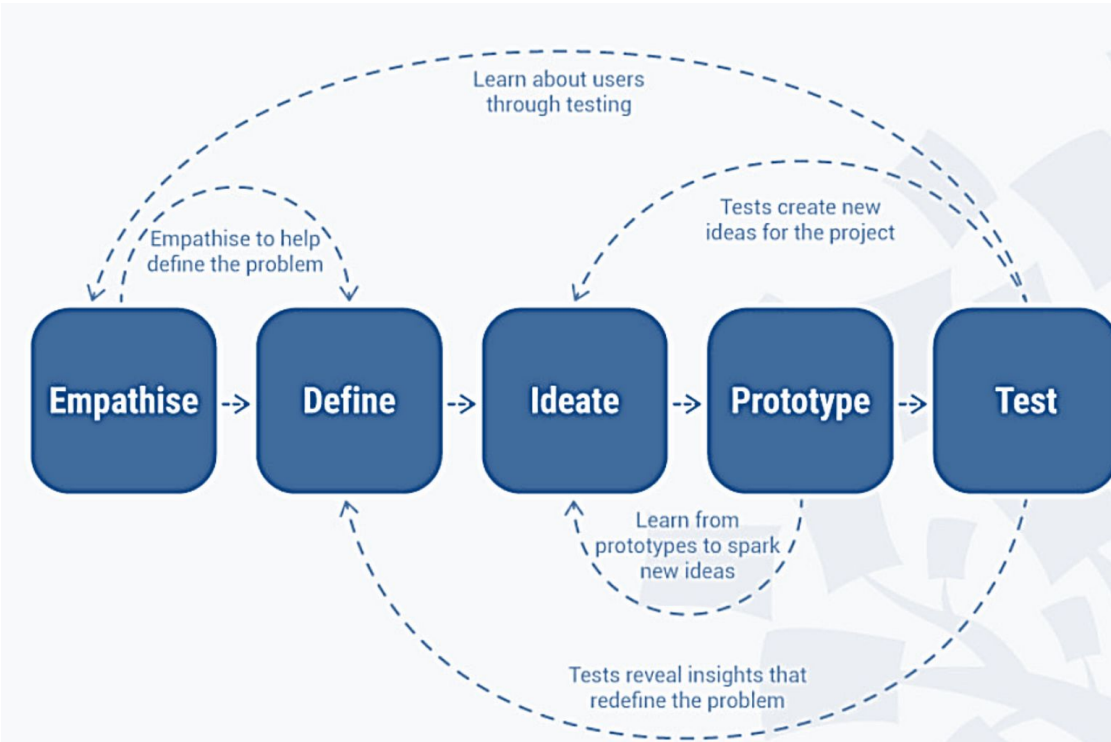


Prototype & Test



- Test your ideas by making them
- Failure is a must
- Iterate your prototypes based on what you've learned

Rinse and Repeat



Application - Airplane

What would the design process look like from each engineering department to build an airplane?



How does this all relate to Industry

- Internships
- Research
- Masters/PhD program
- Full-Time

Questions?

Kahoot: What did you learn?

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Design Challenge

- **Goal:** Create a design using 3D modeling that addresses a problem/inconvenience from being home
- **Prize:** Arduino
- **Submission:**
<https://forms.gle/qMjcunviHPXArRcg8>

Design Challenge Requirements

- Any resources can be used, it must be designed completely by you
- A brief write-up (~1 paragraph) explaining how the design works and why it was chosen is required
- The most creative functional design will be selected
- **Deadline:** 7/2/20 @ 11:59PM

Design Challenge

Resources:

- OnShape - <https://www.onshape.com/>
- TinkerCAD - <https://www.tinkercad.com/>
- Solidworks - <https://rb.gy/cmelm6>
- Design Resources - <https://innogators.weebly.com/resources.html>

Questions?

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Thank you for coming!

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