

# The Wonder Factory

## TEAM MEMBERS

LONDON STARLIN

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PROJECT SPONSOR: THE WONDER FACTORY

INSTRUCTOR: DR. JENNIFER WADE

FACULTY ADVISOR: SARAH OMAN

# Project Description

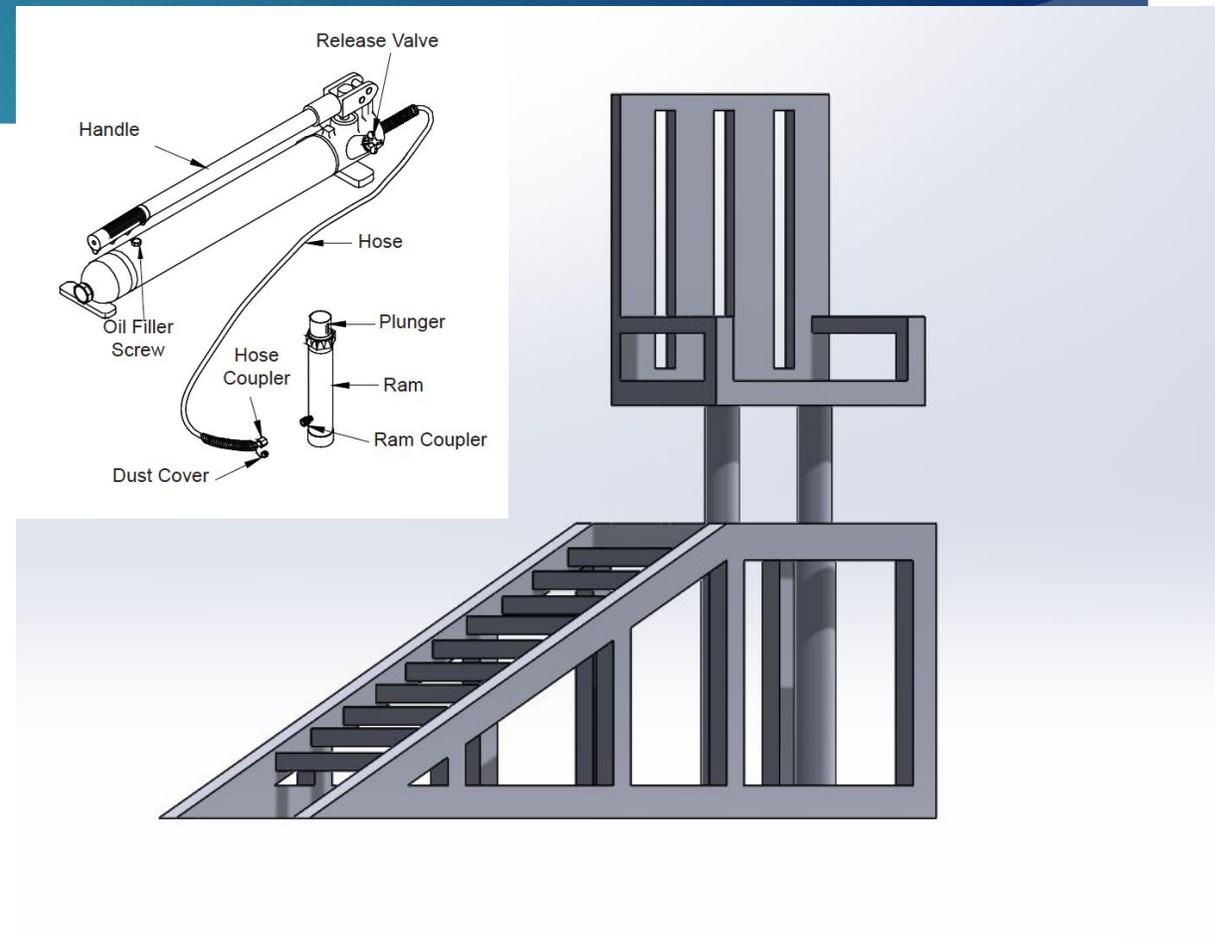
- ▶ The Wonder Factory has asked us to develop, design, and construct an interactive display for public consumption.

## Project Goal:

The interactive display that our team selects to build will positively influence the Flagstaff community by getting their youth and young at heart more aware and knowledgeable about science, technology, engineering, art, and mathematics (STEAM)

# Design Description

- ▶ Users will pump the 4 ton hydraulic hand pump that will move hydraulic oil through a 6' hose.
- ▶ This hose will be connected to a hydraulic ram jack which will be placed below the chair and in-between the two cylindrical supports.
- ▶ As users pump, fluid is transferred through the system and the plunger moves upward, lifting the chair.
- ▶ Users will learn the fundamentals of fluid power through the act of vertically lifting their parents!



# Design Requirements

- ▶ Safe & Simple Instructions
- ▶ Simple to Assemble & STEAM
- ▶ Hands On & Wow Factor
- ▶ Visual Appearance
- ▶ Durable
- ▶ Educational & Mobile
- ▶ Multiple Visitors

# Gantt Chart

Mohammed and London	London												
Team	Abdullah												
Mohammed						Construction Phase							
						6/5/17							8/8/17
	Week 1 (April)	Week 2 (May)	Week 3	Week 4	Week 5	Week 6 (June)	Week 7	Week 8	Week 9 (July)	Week 10	Week 11	Week 12	Week 13
Presentation													
Final Project Proposal													
Website Functioning													
Fundraising Money													
Purchasing Materials													
Prototyping													
Hardware Review 1													
Updating Website													
Testing													
Purchasing Materials													
Presentation 1													
Hardware Review 2													
Updating Website													
Independent Report													
Final Deliverables													
Presentation 2													
Assembly													
Testing													
Owners Manual													
Full CAD Package													
Final Presentation													

# Schedule

- ▶ Currently on time
- ▶ These highlighted sections in the Gantt Chart are extremely important!!
- ▶ In order to start the final phase in the construction process, it is essential to purchase the right material, prototype, and perform tests!

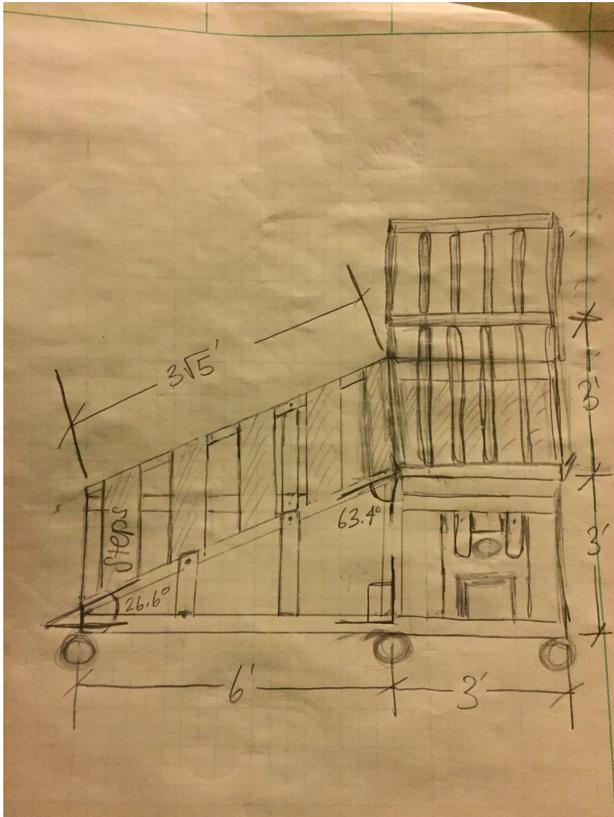
Purchasing Materials
Prototyping
Hardware Review 1
Updating Website
Testing
Purchasing Materials

# Funding

- ▶ GoFundMe Account:  
<https://www.gofundme.com/the-wonder-factory-capstone-team>
- ▶ So far the team has raised \$600.00 but after collecting this money the team will have \$551.40, due to a 5% fee for the platform and a tax on withdraw



# Budget



Item #	Description	Cost
1	0.75"X7.5"X42" Lumber (X7)	\$13.52 (each)
2	2"X 72" Steel Angle 1/8"thick (X9)	\$24.97 (each)
3	2" General-Rubber Swivel Caster w/ Brake (X4)	\$5.86 (each)
4	2" General-Rubber Swivel Caster (X2)	\$2.55 (each)
5	6' X 2" 1/8" thick Steel Flat Plate (X6)	\$13.99 (each)
6	Chair	\$20.00
7	Everbilt 3/8" X 1" Zinc Hex Bolt (25piece/pack)	\$4.21
8	Everbilt 3/8" -16tpi Zinc-plated Hex Nut (25piece/bag)	\$2.70
9	4 ton hydraulic hand ram pump (w/ hosing and valve)	DONATED (\$141.76)
10	Hydraulic Long Ram Jack (24 3/4"-44 1/16" lift range)	\$90.00
11	Cylindrical supports 3" X 0.125"thick 3' long (X2)	\$23.81
12	Inner tubes to cylindrical supports (x2)	\$20.00
13	36" X 36" X 0.025" Diamon Tread Alum. Sheet Silver	\$39.88
14	Everbilt 1-1/2" Zin-Plated Corner Brace (20-pack)	\$8.98
<b>Total</b>		<b>685.24</b>

Questions?

# References

- [1] "Porto-Power Kit," Operating Instructions & Parts Manual, Rev. 12/07, [Online]. Available: <http://www.shinnfuamerica.com/Owners%20Manual/B65114%204TonPorto-PowerKit/816>
- [2] "The Home Depot," The Home Depot. [Online]. Available: [http://www.homedepot.com/?cm\\_mmc=SEM%7CG%7CBT1&gclid=Cl-JgYfTvtMCFQ6CaQode9MAzA&gclsrc=aw.ds](http://www.homedepot.com/?cm_mmc=SEM%7CG%7CBT1&gclid=Cl-JgYfTvtMCFQ6CaQode9MAzA&gclsrc=aw.ds). [Accessed: 24-Apr-2017].