

# The Wonder Factory

## TEAM MEMBERS

LONDON STARLIN

MOHAMMED KATTAN

ABDULLAH ALSHAMMARI

PROJECT SPONSOR: THE WONDER FACTORY

INSTRUCTOR: 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)

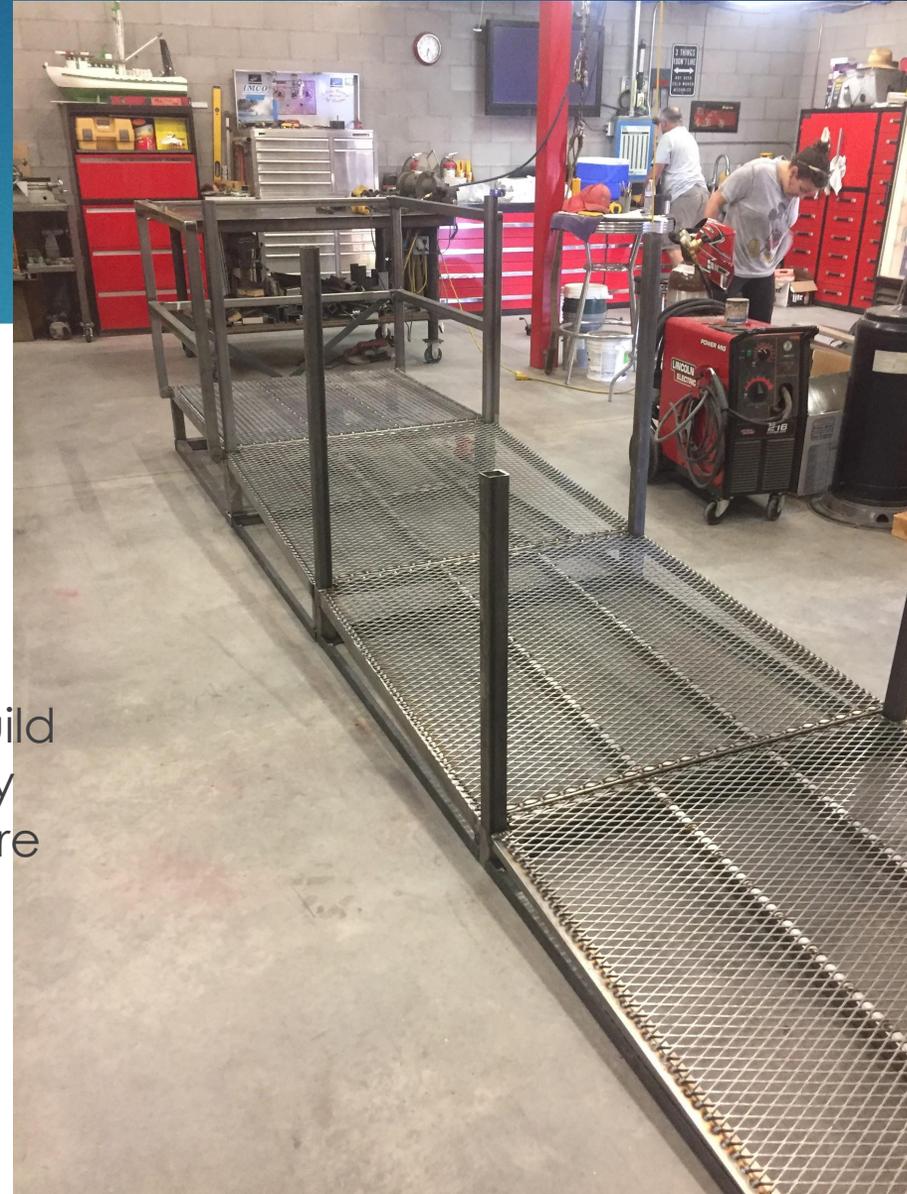


Figure 1

# Changes

- ▶ Steps → Ramp
  - ▶ All inclusive
- ▶ Height from 3' → 12 ½"
  - ▶ Hydraulic output ram
- ▶ Length 6' → 12'
  - ▶ ADA Specifications (1:12)
- ▶ Handrails updated
  - ▶ All steel → Chain Links & Clip/Some Steel



Figure 2&3

# Moving Forward

- ▶ All fabrication is COMPLETE
- ▶ Transportation PHX → FLG (UHAUL)
- ▶ Painting?

## **Analytical Analysis**

Cylindrical Support & Cylindrical Piping Cut  
Weight Analysis  
Bearing Stress on Plate & Cylindrical Support  
Pushing Force Up an Inclined Surface  
Factor of Safety  
Durability Analysis

# Future Testing

## The Wonder Factory Upcoming Events:

- ▶ 7/17 10:30-11:30 am STEM Day at the Flagstaff Public Library
- ▶ Testing:
  - Safety Tests
    - Sharp corner → grinding down edges
  - Usability Tests
    - Operation → make visual instructions
  - Durability Testing
    - Lifts → Making sure it works everytime (correct friction/displacement)
  - Preparation Tests
    - Timing Setup

# Gantt Chart

Moham and London Team	London														
Mohammed	Abdullah and Mohammed														
							Construction Phase								
							6/5/2017								8/8/2017
	week1 (a)	week 2	week 3	week 4	week 5	week 6 (june)	week 7	week 8	week 9	week 1	week 1	week 1	week 13		
Presentation															
Final project proposal															
Website functioning															
Fund raising money															
Purchasing material															
Prototyping															
Hardware review 1															
Updating website															
Testing															
Purchasing material															
Presentation 1															
Hardware review 2															
Mid Point report															
Updating website															
Independent report															
Manufacturing															
Final deliverables															
Presentation2															
Assembly															
Testing															
Owner's manual															
Full CAD package															
Final presentation															

# Schedule

- ▶ We are ahead of our schedule.

<b>Transport the design to Flagstaff and tested</b>
<b>Do the Operational Manual</b>
<b>Do the Poster of the Design</b>
<b>Finish up the final report</b>

# Budget

- ▶ The total Budget of this project is \$1300-2000
- ▶ So far the team spent \$969.83 to build up the design.
- ▶ Other expenses might be added by the end of the project.

<b>Total Budget</b>		<b>2000\$</b>
<b>Materials Costs</b>		
<b>Platform (Base)</b>		<b>163.95\$</b>
<b>Ramp</b>		<b>643.62\$</b>
<b>Railing</b>		<b>162.26\$</b>
<b>Total</b>		<b>969.83\$</b>
<b>Balance</b>		<b>1030.17\$</b>

# Lifting Platform in Action



Questions?