# THE SLINGSHOT PROJECT

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# Background and benchmarking

- There have been many games for children that have been designed
- For our project we want to make it independent in that it will not need human effort to operate
- The project must also ensure safety, portability, simplicity of operation and usability

# Project Description

- Client is 'Wonder Factory'
- An organization made up of parents and volunteers in Flagstaff getting an engineering and science center.
- Wonder Factory works is
  - Science
  - Technology
  - Engineering
  - Mathematics
  - Art Subjects
- Provide distinguished items for children's wonder

# Project Description

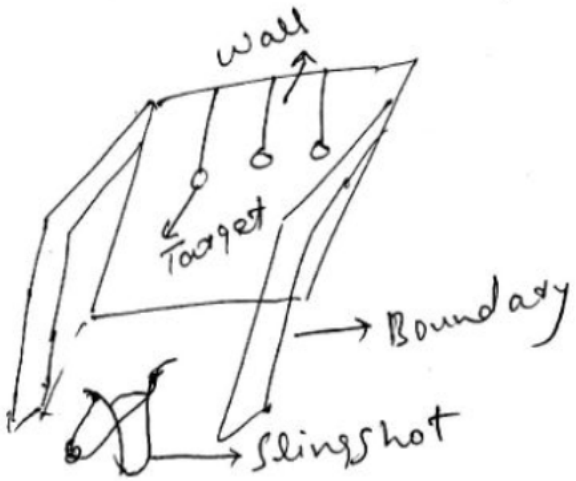
- Our project is to develop a unique thing for wonder factory play space area
- A wow factor game for children's
- Game concept is ‘Slingshot’
- Children will able to indulge themselves
- Multiple Slingshots are available
- This game is a new concept

# Project Description

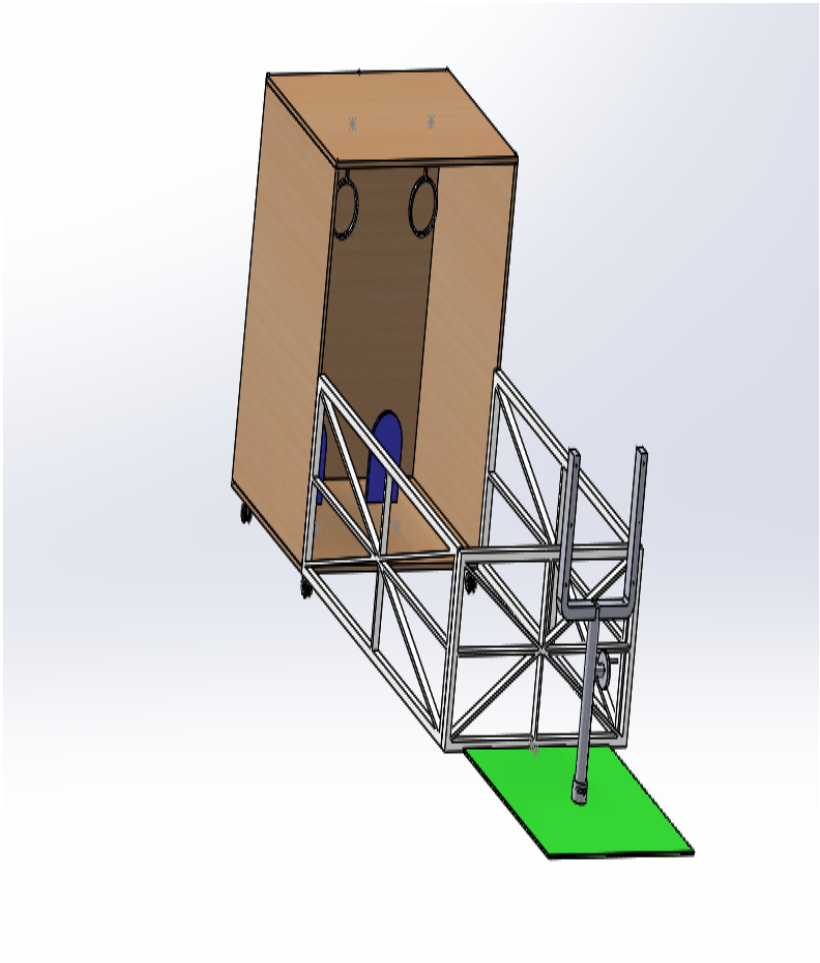
- This game needs
  - Separate play area
  - Target Icons
  - Ball
  - Slingshot
  - Walls

# Design Description

- Customized Design. A wall boundary with target icons. A slingshot places in front of play area.



# Final Design

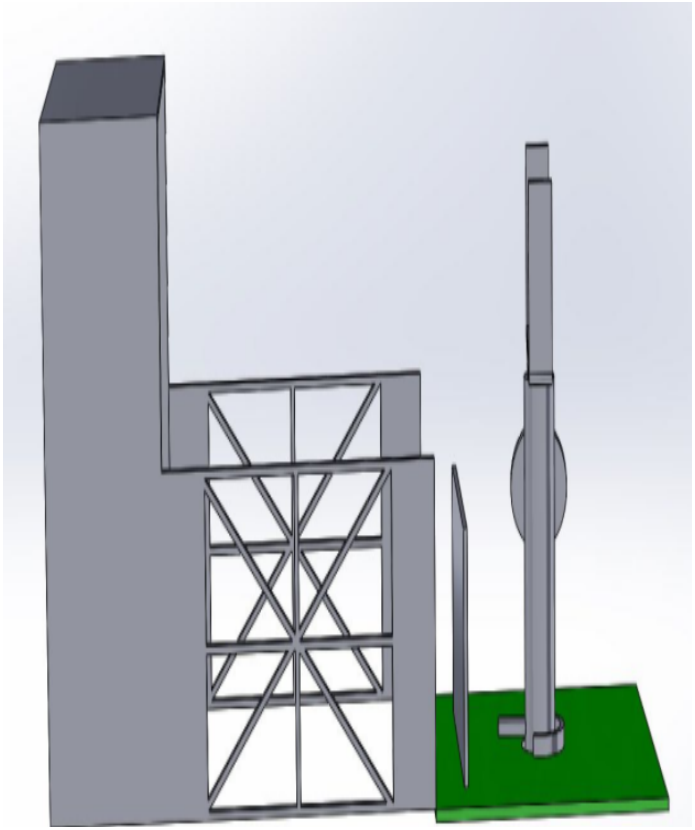


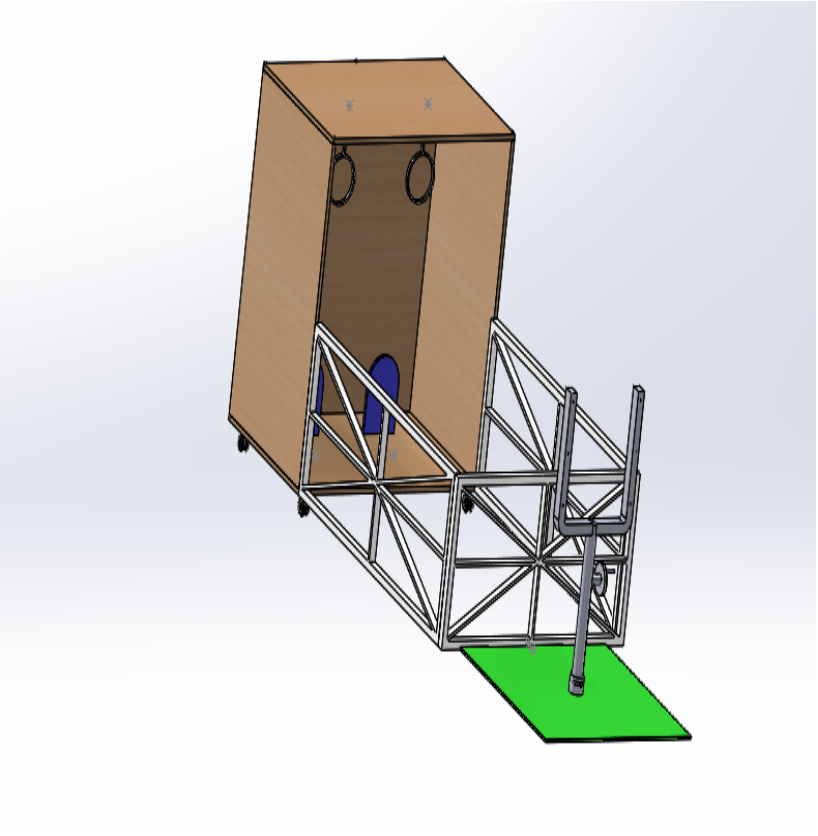
- This project will be about designing a game for children known as slingshot
- It will be designed in a way that it can work on itself without any human help
- The project will be designed to provide for:
  - Hands-on opportunity for children
  - Interactive experiences

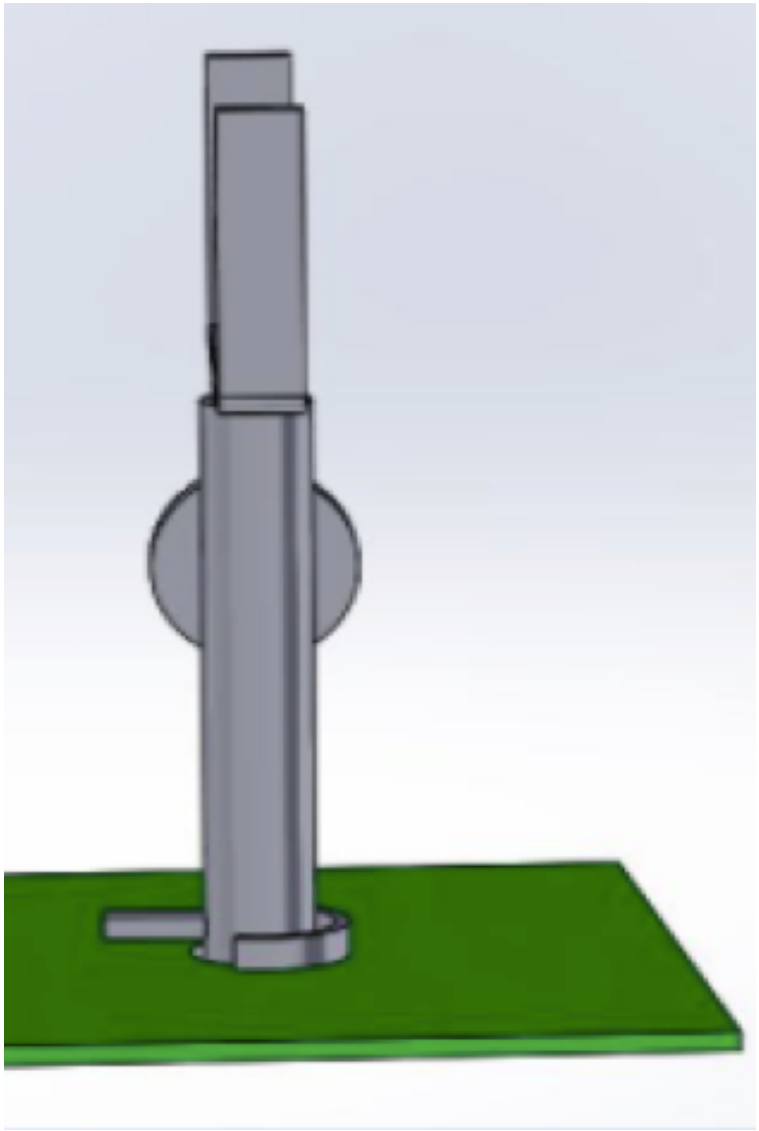
# Final Design Description

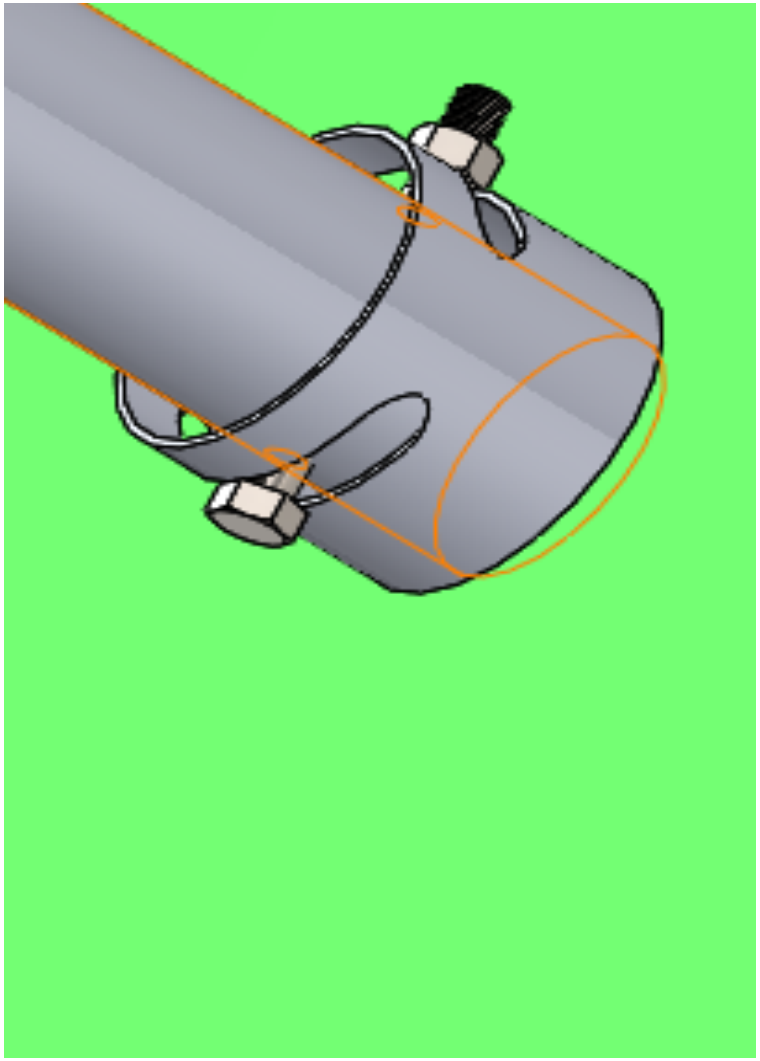
- The slingshot will pass through the ball to hit a boxing ball held in the wooden booth
- For safety purposes it cannot rotate beyond 45 degrees
- At the front there will be a fence to keep the children away from going in front of the slingshot
- The fence will also assist in preventing the ball from going so far once it is rotated
- To enable the game to work on itself without human help we created a pulley to drag back the ball to the slingshot again and again without human help

# Changes on CAD

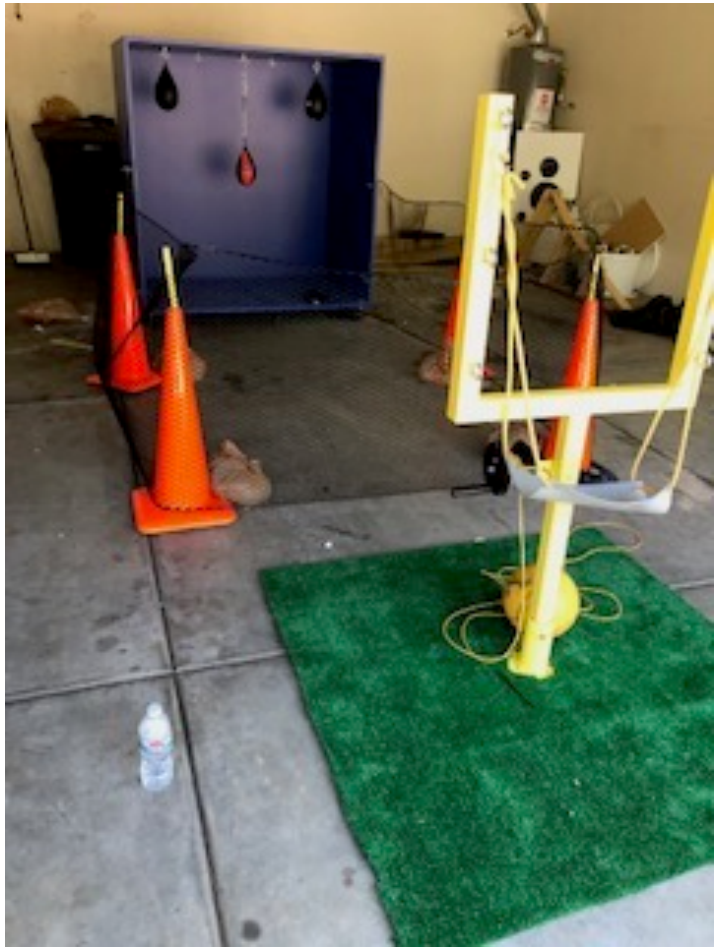








# Final design



# Testing the design

# Contingencies

- The month of April was our contingencies.

# Customer requirements and weighting

| Customer requirement | Description |
|---|---|
| Safety | Anyone can use it without being exposed to any danger |
| Easy to use | It can be used without so much hustle |
| STEM concept | It must incorporate Science, Technology, Engineering, and Mathematics |
| Entertainment | It must have fun to use |
| Portable | Easy to move from one location to another |

# Design Meeting Requirements

- Safety
  - Design is safe to use as there is no sharp edge
- Ease to use
  - There is no difficulty in using the project as it is simple and easy to play
- STEM Concept
  - It is using the science technology of slingshot using projectile motion

# Design Meeting Requirements

- Entertainment
  - The design is entertaining by playing a throwing game to hit the target
- Portable
  - The design is portable and easy to carry

# Engineering requirements

| Engineering requirements | Targeted Values |
|---|---|
| Range of Ball | 4 Meters |
| Height of Ball | 1.5 Meters |
| Angle of slingshot | 45° |
| Weight of Ball | 0.2 Kg |
| Elasticity in Rubber Band | 300mm elastic Length |
| Energy Transmit | 1 kJ |

# Design Meeting Requirements

- Range of Ball
  - Design has the fence walls to keep the ball within the boundary
- Height of Ball
  - Ball height controls through slingshot throw so the slingshot throw the ball within 1 and half meters
- Angle of Slingshot
  - Slingshot can throw the ball at an angle of maximum 45 degrees

# Design Meeting Requirements

- Weight of ball
  - Ball weight is up-to the user but it will be use within 0.2 kg
- Elasticity in Rubber Band
  - Rubber band will have the elasticity 300mm
- Energy Transmit
  - Energy will transmit from the rubber band and that energy will be within the 1 kJ

# Design solution

- Elastics of the rubber
- Changing the booth size
- Pick the right wood type
- Pick the right steel type

# Manufacturing

- Welding the slingshot frame

- Assemble the wooden booth and the fence .

# Budget

- Total budget is $2500
- Anticipated expenses: $1330.56
  - Material is 45%
  - Manufacturing 40%
  - Prototyping 15%

# References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Any QUESTIONS?????

THE END…

THANK YOU