STAR

• Introduction
  • Ryan Herbert
• Brainstorming & Design
  • Aaron Bolyard
• Construction
  • Heath Haddix

• Changes
  • Mike Butera
• Conclusion
  • Fatemah Bahman
Goal’s of the Project

- Build a catapult to launch a golf ball at a target
- Design catapult and record all changes made
- Safe design
- Cost efficient
- Accurate
Specifications

- Catapult had to fit into a 1.5 by 1.5 square box.
- Any materials could be used
- Keep cost of materials as low as possible
- Needs to launch a golf ball at a target 9 feet away with each ring being 3 inches in thickness
Target
Brainstorming

- Group Meetings
  - Discussed possible materials needed
  - No ideas left out
  - Decided where materials could be found

- Materials
  - Springs, medical tubing, rubber bands, wood, legos, nails/bolts, bricks, etc.
Design

- Design-type to be constructed
  - Consisted of similar sketches by group members
  - Basic design and measurements were completed
  - Kept design stable, safe, simple, and cost efficient
Preliminary Sketch

- Includes brainstorming ideas and first design
Revised Sketch

- Rough sketch of final catapult design
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Construction

- Materials
  - ¾ inch plywood
  - 7 inch bolts
  - Locknuts/Screws
  - Medical Tubing
  - L-brackets
  - Eye bolts
Building Complications

- Building Location
  - Spacious environment

- Locating Materials
  - Material and tool availability

- Low Budget
Changes to Design

- Bungee chord to medical tubing
- Different trigger mechanism
- New stopper
  - More efficient for catapult launch
- New golf ball holder
  - Less friction
Trial Results

- Before Changes
  - Bungee chords caused an inconsistency in distance and accuracy
  - Release mechanism was inconsistent
  - Out of 20 attempts, 75% of the time the golf ball shot too high

- After Changes
  - Medical tubing improved accuracy and consistency
  - Release mechanism more consistent
  - Out of 20 attempts, the golf ball hit the bull’s eye nearly 90% of the time
Summary of Design

- Sturdy
- Consistent
- Cost efficient
- Safe
Conclusion

Design Process
- Given specific restrictions
- Brainstormed ideas
- Sketched possible designs
- Built the best design
- Made changes as needed
Questions?