

Race of Doom

Track Team

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Introduction & Problem Statement

- **Technological Reshaping of Entertainment**
 - Introducing an advanced RC racetrack with dynamic, interactive traps to transform traditional recreational activities.
- **Innovative Track Design**
 - Features technology and traps that challenge participants beyond speed, incorporating strategic gameplay and technical hurdles.
- **Enhancing Engagement**
 - Traditional tracks often focus solely on speed, our design tests adaptability and strategic maneuvering, offering a more dynamic and engaging environment.

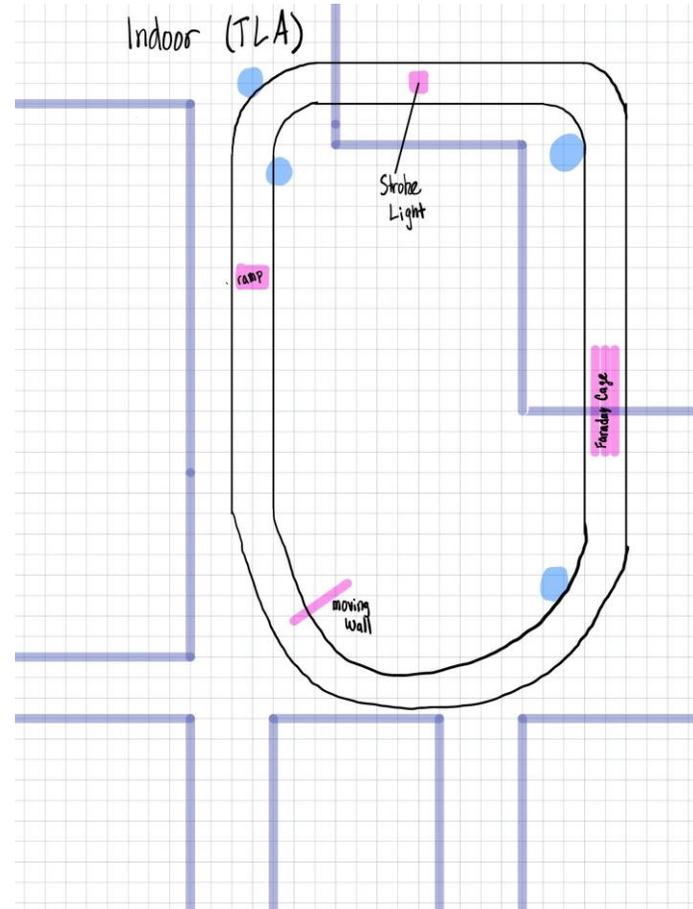
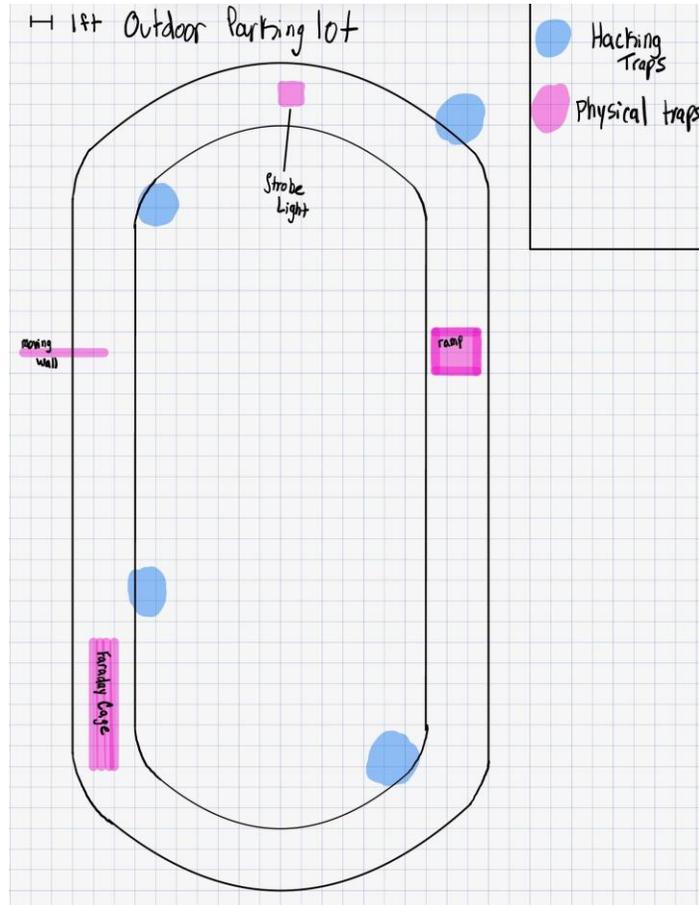


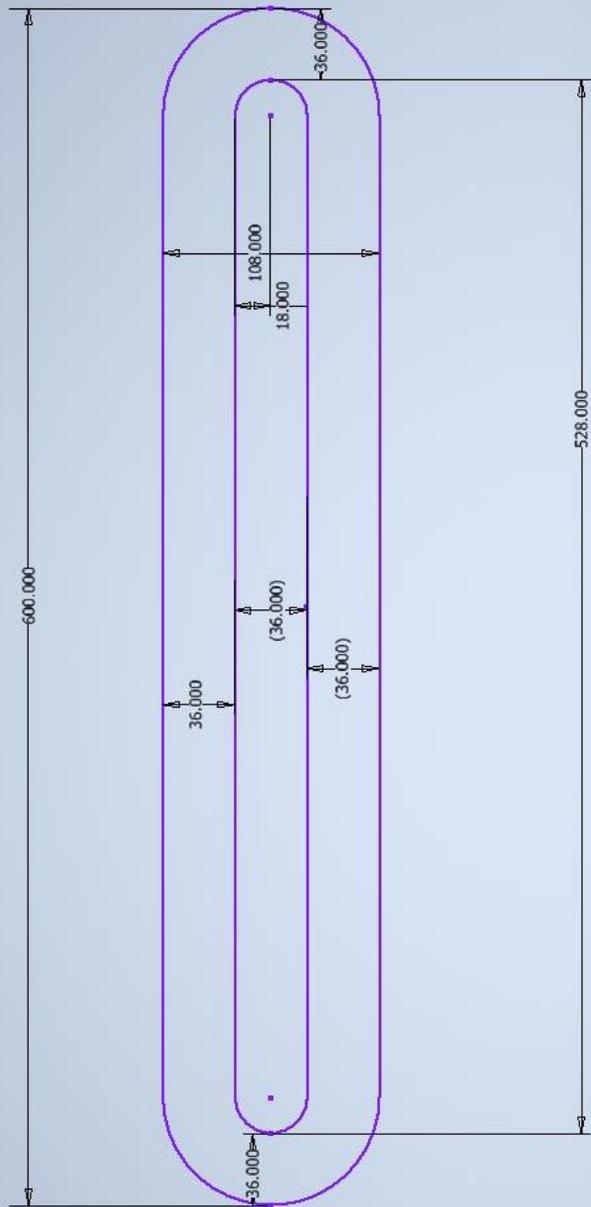
Intended Users/Uses & Differentiation

- **Intended Users and Uses**
 - Aims at local RC enthusiasts and a broader community interested in a multifaceted racing experience, serving as a hub for both competition and learning.
- **Differentiation from Traditional Tracks**
 - Unlike typical RC tracks, our track includes advanced challenges with moving electronic obstacles, elevating the technical stakes and interactive experience.
- **Community and Educational Hub**
 - Fosters a space for hobbyists, students, and tech aficionados to engage socially and educationally, blending physical and cybersecurity challenges.



Original Design





Revised Design

- Exact trap dimensions found
- Location found
- Exact footage for wall material found
- Trap location open to change depending on testing with car teams

Implementation Details

- **Traps:**

- Finalized designs based on testing
- Faraday cage: made sure the shielding material blocks external signals
- The moving walls: constructed using lightweight materials such as cardboard, Servo motors calibrated to move the walls smoothly and consistently

- **Track:**

- Assembled recycled materials such as cardboard to form the track layout
- Focused attention on creating a smooth track surface
- Layout will accommodate trap placement at strategic points to challenge participants while maintaining the race flow

- **Terrain:**

- Terrain elements (ramps and uneven surfaces) have been added into the track design
- Ramps can and will be adjusted to find the optimal angle for the various RC cars
- Surface textures will be chosen to provide traction without negatively impacting the movement of the cars.

Testing Process

- Many changes or additions in our design were implemented because of the continuous testing throughout the process.
- Testing was first done with a regular RC car by our team. This ensured the basic trap function before testing with the other teams cars.
- Lastly, each car team tested out their vehicles on each trap. Suggestions were then made to improve the trap without fully inhibiting the car teams.

Testing Results

- For our faraday cage, some signals were still penetrating our shell. To remedy this, we added a layer of tinfoil to block more signals from traversing inside the cage.
- For the ramp, our angle of ascent was very steep and very difficult for the car teams to traverse accurately. We shortened the height of ramp making the angle much shallower allowing the teams to traverse this obstacle.
- For our moving walls, a lot of the changes were due to limitations in our instruments. The servo motors we acquired were very small and not the most powerful.

Economic and Community Benefits

- **Tourism and Economic Growth**

- The introduction of the new RC track serves as a unique attraction
- The influx of tourists also drives investments in local infrastructure and public services

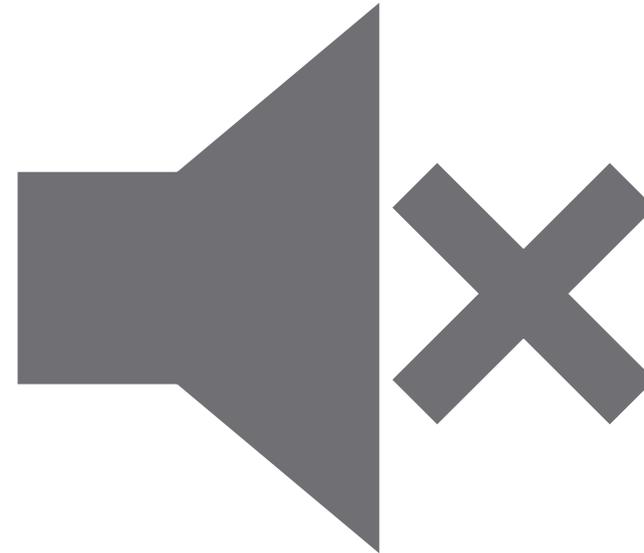
- **Educational and Business Opportunities**

- The track promotes partnerships with educational institutions and technology companies, fostering innovation and offering significant opportunities within the community.

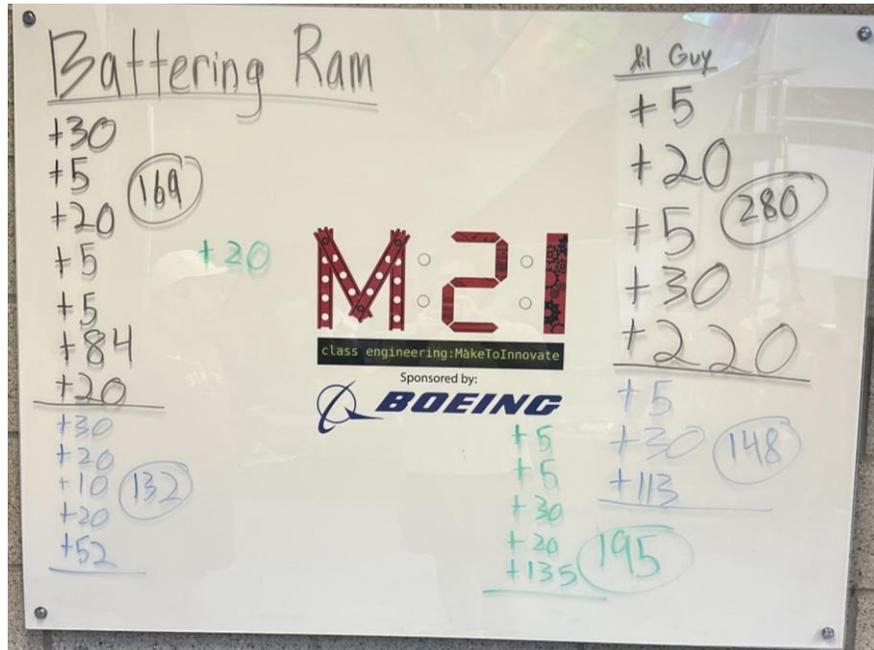


Environmental and Societal Contributions

- **Mitigating Environmental Impact**
 - Addressing potential noise pollution through advanced sound-dampening technologies and thoughtful event scheduling to align with local noise ordinances.
- **Global Influence and Public Engagement**
 - The integration of cutting-edge technology in recreational settings sets new educational benchmarks globally and shifts cultural norms towards inclusivity in tech-driven sports and activities.



Conclusions



- Our track was extremely successful! Both teams struggled on different traps while also being able to navigate the entire track
- We learned a lot about the process of project management and planning. This is an integral part of work in industry.
- This project is very fun and open to creative ideas.

Appendices

- **What we have learned**

- Project management
- Problem solving
- Wood working

- **Scrapped Ideas/Revised**

- Coding to had the cars
- More terrains

Considerations before learning about the project

- The walls weight
- Steepness of the ramp
- Testing more with the RC cars