

# Air Cannon Hockey (SUPER BOMBASTIC STYLISH BOWLING BALL LAUNCHING BALL 🎉🎉🎉🎉)

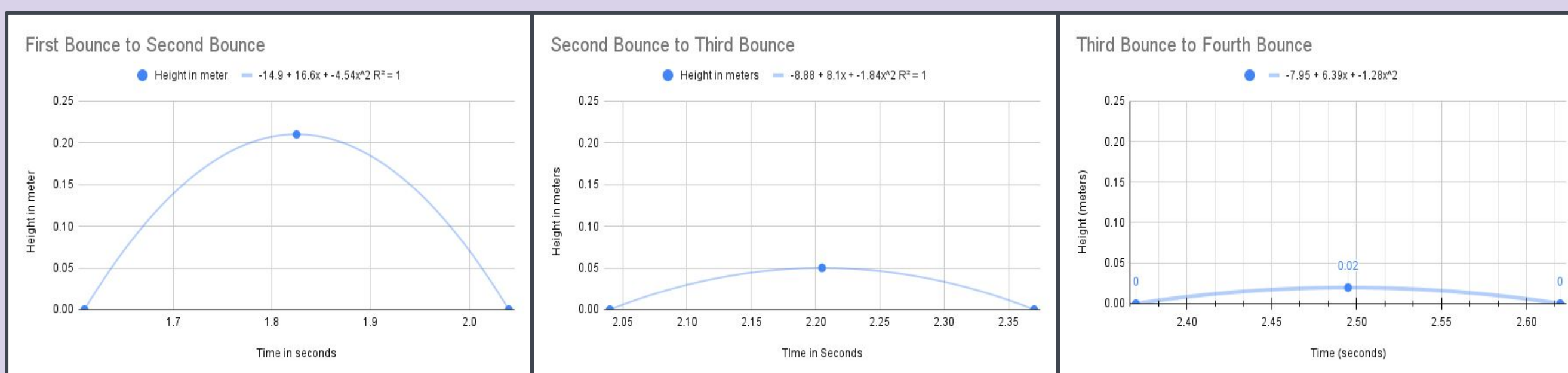
## Ask: Statement of Project Goal

In this project, we hope to create a new game or sport that can be played using a bounceable ball and simple arena. We will need to be able to replicate this new “sport” in our high school Physics lab, with the materials found there. This means that our options for racquets or tools used to play will be relatively limited, so we will have to be creative in our game’s creation.

## Plan: Background and Prior Work

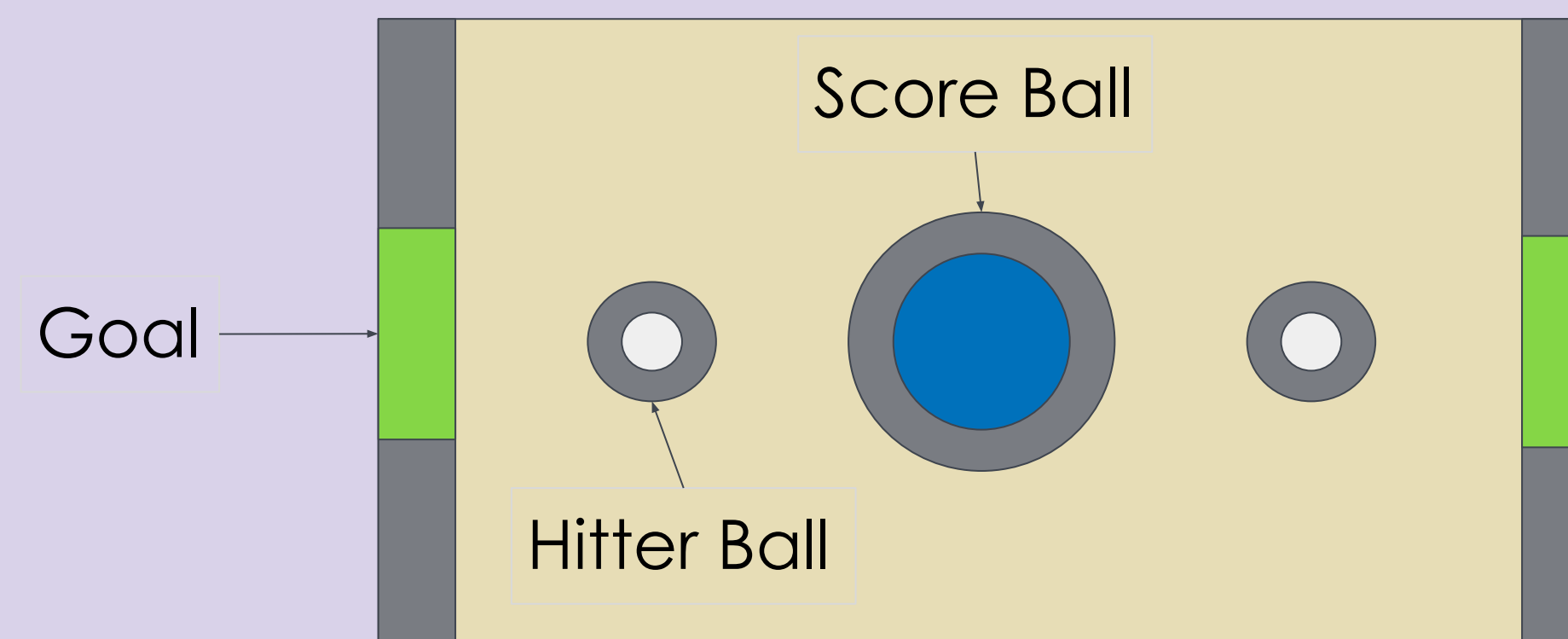
Our game revolves around hitting the central “score ball” into the opponent’s goal using a smaller “hitter ball.” The score ball starts on a central “tee,” and the first person to hit it off gets the first point of the game. After that, you must throw the small hitter balls at the score ball in order to get it into the opponents goal for one point each. You cannot interact with the score ball through any means other than a hitter ball. The first player to score five points wins the match.

## Fundamental Research

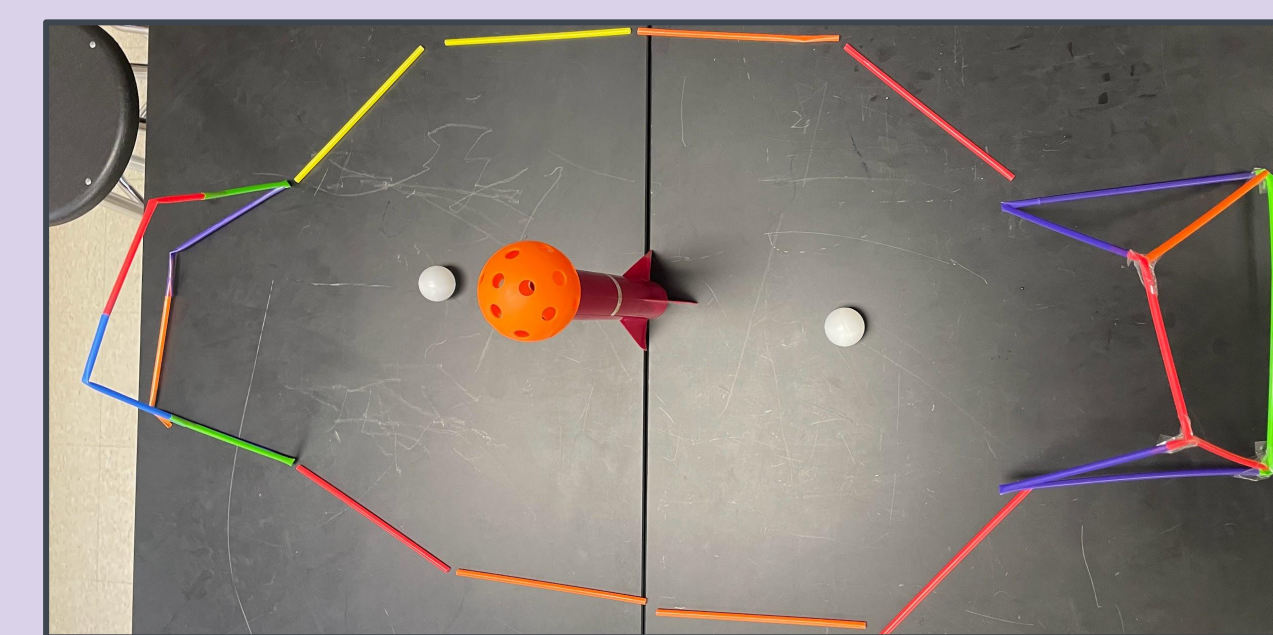
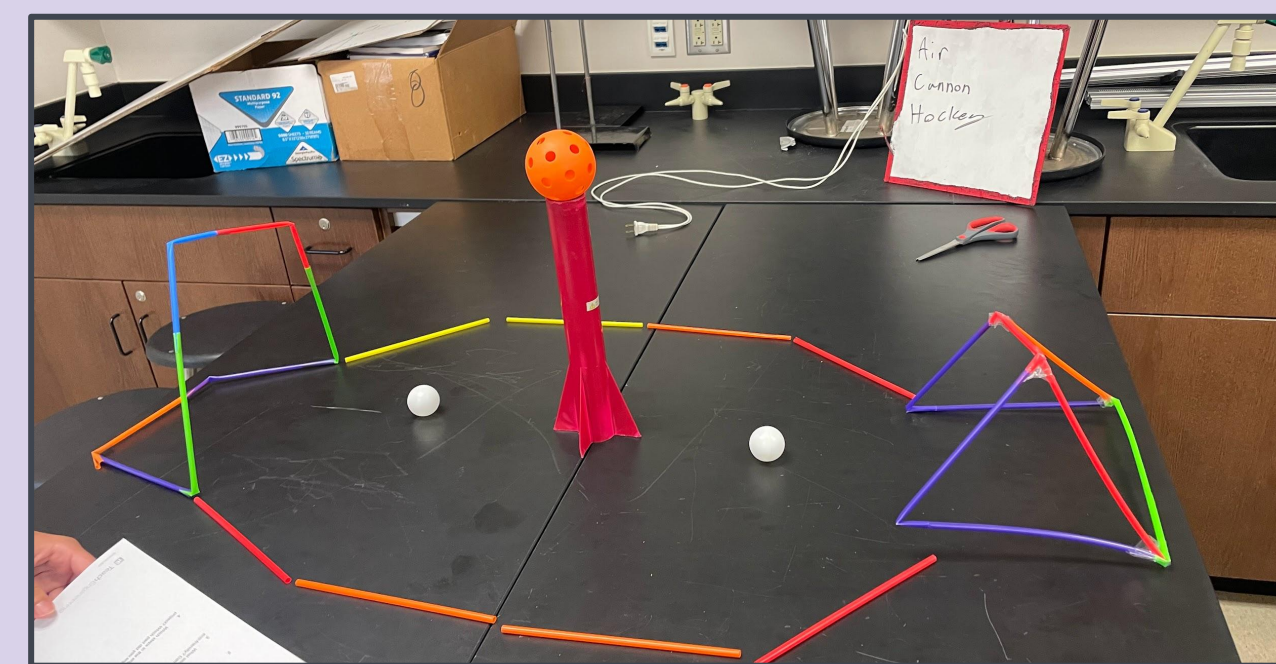


Our goal was to use this research to determine the optimal ball to be used as the score ball in the game. As can be seen from the graphs, the wiffle ball loses a large amount of its energy through its bounce, which makes it a good candidate for our game. Its properties force the players to hit the ball more times to score, keeping the velocity of the score ball low while the velocities of the hitter balls are high.

## Imagine



## Create



## Test Results

“This ball is bouncing out of the stadium like crazy”

-Student A

“It’s fun, but the rocket keeps falling over and stopping the game from being played. Very L rocket”

-Student B

“It takes a lot of force while throwing the ping pong balls to move the wiffle ball.”

-Student C

“Very fun game! I love the stadium lighting.”

-Student D

## Improvements

- Add walls made out of cardboard instead of straws to prevent ball from rolling out of the stadium
- Increase the mass of the smaller balls to make the bigger ball more responsive to the collisions of the smaller ball.
- Stabilize the tee, use a 5kg weight instead of a rocket. (Or lots of tape)

## Future Work and Marketing Plan

The target audience for our sport is elderly folks in retirement homes. The marketing strategy is to advertise the motor and neural connections formed while throwing the ball, increasing cognitive function. The comforting size, simplicity, and safety of the game is perfect for seniors to stay mentally and physically coordinated. The balls and materials will be sourced from ethical suppliers and materials, increasing our company reputation with the public.

## References and Acknowledgements

We owe a debt of gratitude to Mrs. Mukherjee for the materials she provided and her many sighs of “approval and wonder” while we were making our project. Mrs. Mulherjee provided us with the ping pong balls, model rocket, wiffle ball, 5kg weights, straws, tape, and lamp. (stadium lighting). Special thanks also goes out to Bohan and his super-duper-ultra-mega funny jokes that supported us in our engineering journey