



# Features and Functions

## Definitions:

**Features** - a distinctive attribute or aspect of something

**Functions** - an activity or purpose natural to or intended for a person or thing

## Examples:

"the hotel **features** a large lounge, a sauna, and a large swimming pool"

"bridges perform the **function** of providing access across water"

# Features and Functions

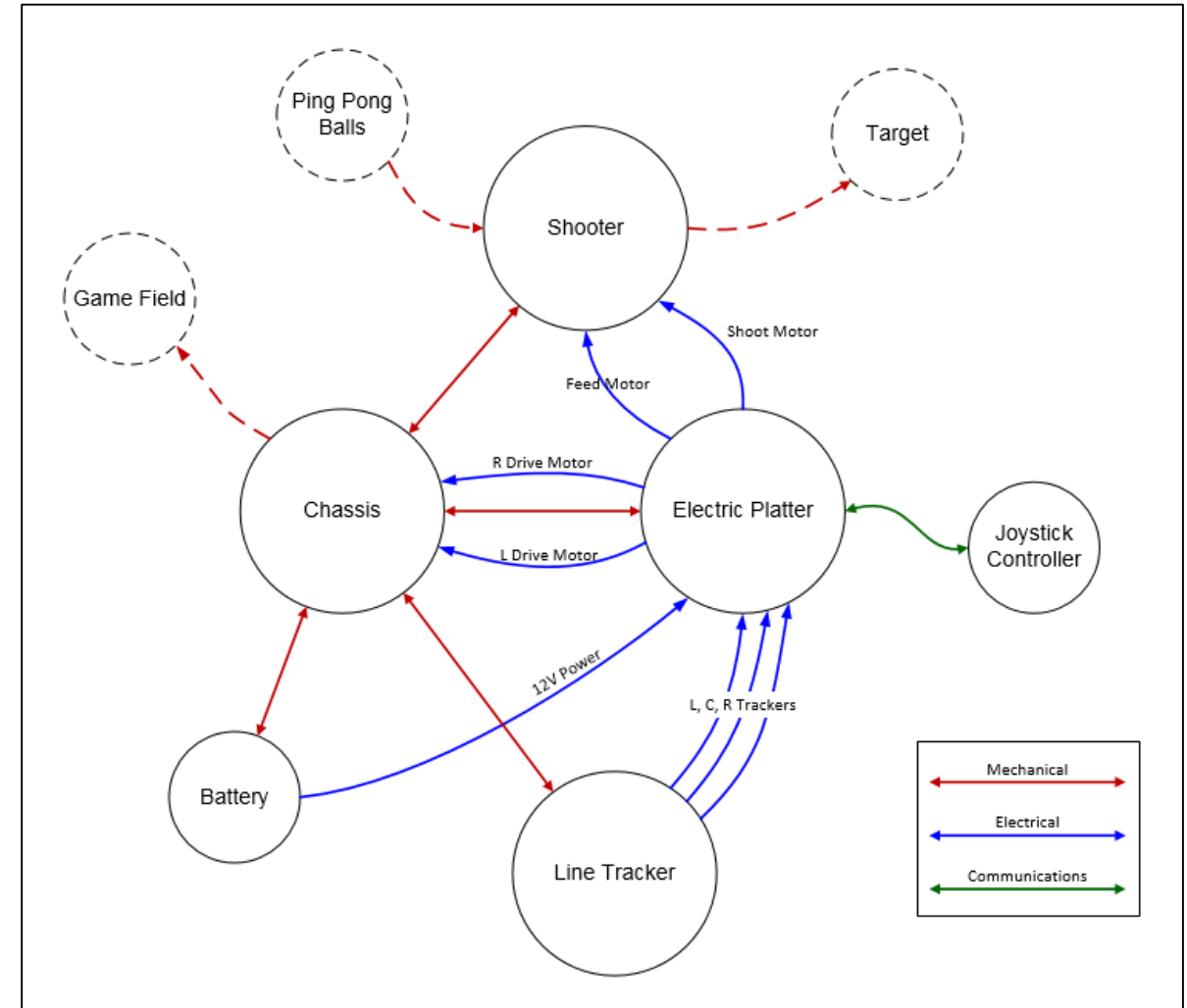
What are the key features and functions of the Yr 1 Robot?

- Controllable by wireless joystick controller
- Drives forward, backwards, left, or right
- Follows a white line autonomously
- Shoots ping pong balls at a target
- .....

What are the key features and functions of the Yr 1 Robot **Shooter**?

- Shoots ping pong balls at a target
- Holds 4 or more ping pong balls
- .....

Yr 1 Robot Context Diagram



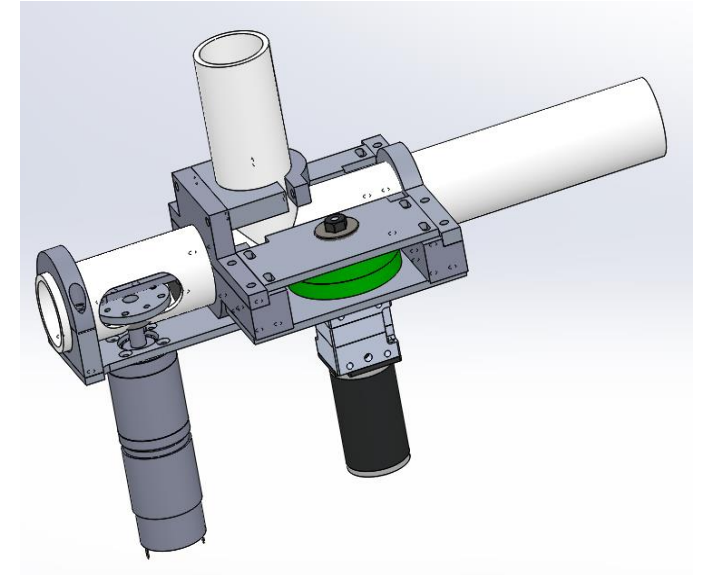
# Features and Functions

Based on the game rules, what are the key features and functions the robot shooter should have?

## Applicable Ping Pong Pandemonium Rules:

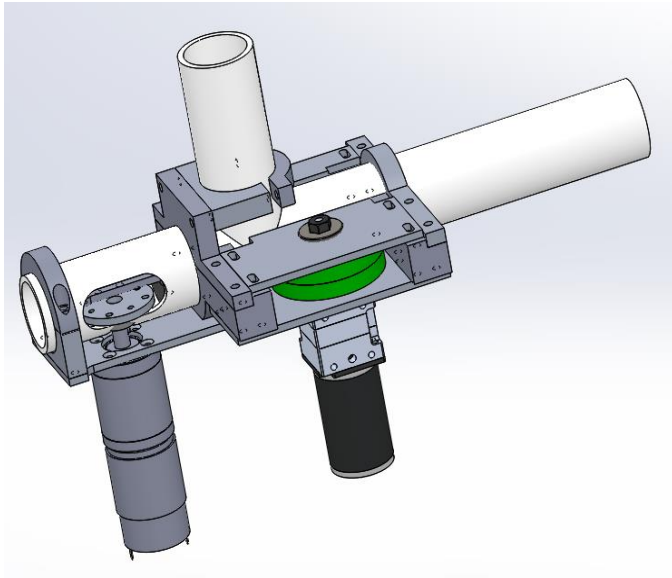
- ◆ 3-2: A maximum of 4 balls can be loaded into the robot when triggered by the student loader on the team.
- ◆ 4-1: Robots will score by getting the ping-pong balls into a 5" diameter round goal, centered at 36" above the floor. The goal is a hole in an otherwise flat surface. The goal is vertical. The goal will be located several feet outside the robot boundary.
- ◆ 4-2: 4 points will be awarded for each ball scored into the goal (and staying inside the goal)

- Shoots ping pong balls in a straight line for distances of 5 ft minimum
- Shooter aim can be adjusted quickly
- ....



# Functional Analysis and Requirements Definition

The key features and functions that exist, or are desired, are used to generate the requirements for design.



## Requirements of the Shooter Subsystem

- Able to reliably shoot multiple (at least 4) ping pong balls
- Must shoot ping pong balls a distance of at least 5 feet
- Able to repeatedly hit within a 5" diameter round target at a distance of 5 feet