The 99% Robot
Mechatronics
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Objective

- To either push an opponents’ robot out of 3-foot diameter or disable it within the arena in 3 minutes or less.
Constraints

- To stay within the ring
- IR sensor under the chassis
- When pushed out of the ring, robot is to shut down and red LED should turn on.
- At least one offensive strategy
- Less than 1 Kg
- 20 ×20 cm dimension
- $20 Budget for additional parts
Overview of “The 99% Robot”

- Mouse Trap
- Metal Chassis
- Egg Crate Armor
- Sticky Wheels
- SONAR
- QTI Sensors
- RED LED Light
- Steel Block
Sensors

- **QTI sensors**
  - Three QTI Sensors
  - Two front QTIs used to keep our robot within the ring
  - Middle QTI used to shut off robot when out of the ring

- **SONAR**
  - Used to detect and locate opponent
  - Calibrated to a certain length
  - Quick Response
Mechanical Features

- Two Motors
- Metal Chassis
- Mechanical Mouse Trap Flipping Device
- Sticky Tires
- Egg Crate Armor
Offensive Strategy

- **Mouse Trap**
  - Triggers when pressed by opponent
  - Has the potential to lift/flip opponents robot
  - Widened Wheel Base to prevent flipping
  - Light
  - Fits within the dimension constraint

- **Sticky Tires**
  - Increases traction
  - Increases Power
Defensive Strategy

- Egg Crate Armor
  - Strategic Disguise
  - Deceptive depth
  - Attempts to confuse opponents Sonar
  - Buys time for our robot to find opponent
  - Lighter than foam

- Strategic Steel Block
  - Under the chassis in the center and back of our robot
  - Weighs it down and creates stability
  - Prevents our robot from flipping when mouse trap is triggered
  - Makes it harder for an opponent to push our robot

- Easy access to wires
  - Allows us to be able to fix the robot within rounds and quickly
Questions?