



Team #17 30 lb. Combat Robot "Everclear"

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Background

The Bengal Bot Brawl competition, involves 30 lb. combat robots, designed by students using a \$2,000 budget. To win a match, a robot must immobilize or remove their opponent from the combat volume.

Objectives

- Design a 30 lb. combat robot that complies with competition rules.
- Win the LSU's 2018 Bengal Bot Brawl and Robot Battles competition.

Engineering Specifications

	Projected	Actual
Lift	30-lbs.	62-lbs.
Push	35-lbs.	60-lbs.
Repairable within	10 minutes	≈ 8 minutes
Speed	10 $\frac{ft.}{sec.}$	15.24 $\frac{ft.}{sec.}$
Acceleration	5 $\frac{ft.}{sec.}^2$	7.26 $\frac{ft.}{sec.}^2$
Minimum Battery Life	>9 minutes	55 minutes
Ground Clearance	0.15 inches	0.5 inches
Weight	12-30-lbs.	30.3-lbs.

Safety Considerations

- Cannot put judges, spectators, or operator at risk.
- Battery charged safely, using fireproof bag.
- Protective equipment worn during manufacturing and testing.
- Power switch to turn off robot in critical situations.

Drive System
1. 6" Drive Wheel
2. 6" Idler Wheel
3. 775 Redline Motor, with 20:1 Gearbox

Attack System
4. Wedge
5. 775 Pro Motor, with 36:1 Gearbox
6. 2:1 Chain Drive

Power System
7. 100 Amp Fuse
8. Switch
9. 8 Ah Battery
10. 13 Ah Battery
11. 100 Amp Fuse

Control System
12. Dual Channel Drive ESC
13. Attack ESC
14. 6 Channel Micro Receiver

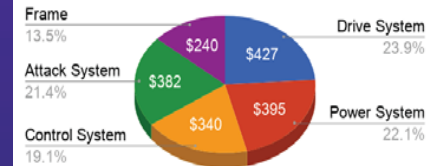
Frame
15. 1/8" Aluminum Tubing
16. 1/8" Polycarbonate Shell



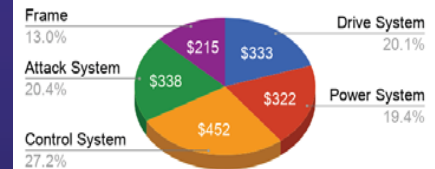
Competition Results

Placed 3rd in the Bengal Bot Brawl.
Record: 1 win, 1 tie, and 2 losses.

Projected Budget - \$1,784



Actual Budget - \$1,659



Impact Test



Drop Test



Lift Test



Improvements

- Reduce frame size and redesign its shape.
- Two ESCs used for the drive system to better calibrate the motor speeds.
- Incorporate static wedge into frame.
- Add four wheel drive and wheels with better traction.

