

ME, ECE, IE Capstone Design Programs

Team 18: ATLAS

Charles Chauncy, Hunter DesRoches, Decatur Durel , Lee Freyou, Ryan Moreau

Background

Combat Robots must be built to the specifications defined by RobotBattles on their rule page for 30 lb robots. While competing, the robots attempt to remove each other from the combat platform, generally by pushing each other off the edge.

Competition Dates:

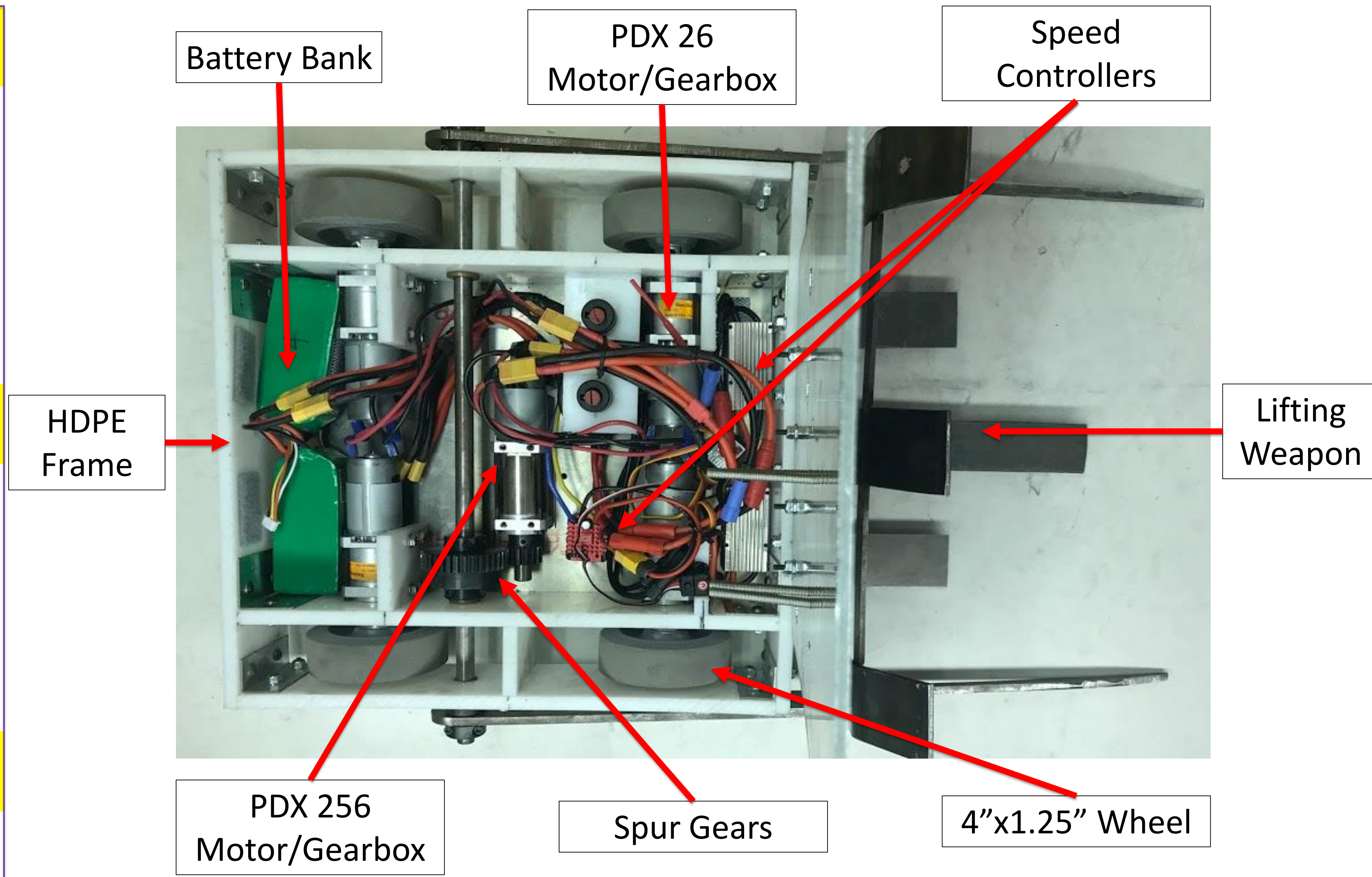
- LSU Competition: April 4, 2017
- MomoCon: May 25-28, 2017

Objectives

- Build a weaponized combat robot for the LSU Capstone Design competition in April within the "Robot Battles" featherweight class rules and a budget of \$3,000.
- Win the LSU competition
 - 2nd place/Rumble Champion
- Win the RobotBattles competition at MomoCon

Engineering Specifications

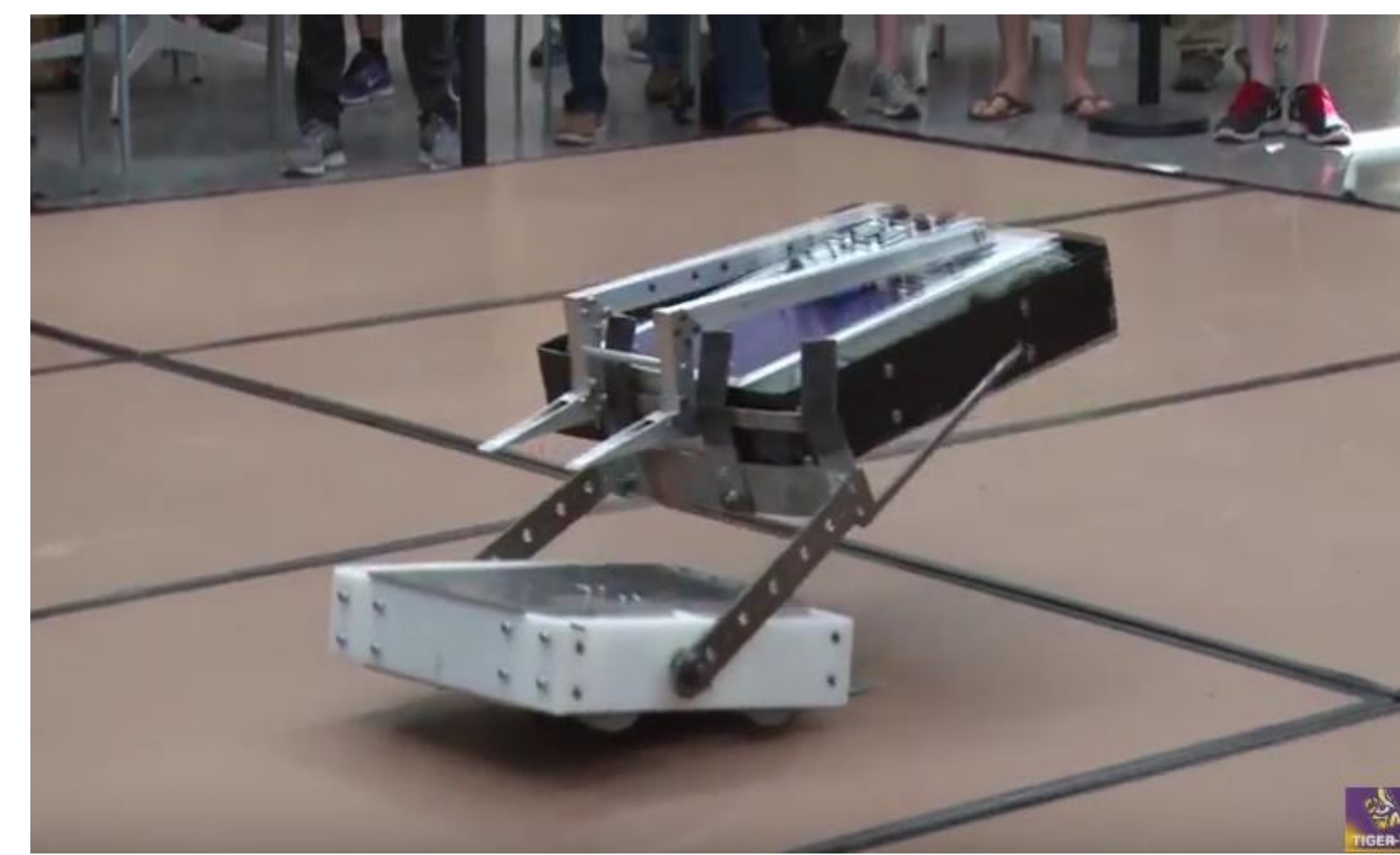
Specification	Target	Value
Weight	29.25 – 30.75 lbs	30.40 lbs
Tip Speed (weapon)	< 20 ft/s	.0872 ft/s
Robot Size	< 16' x 16'	16" x 24"
Drivetrain Force (one wheel)	60 lbs	75 lbs
Lifting Capability	30 lbs	35 lbs
Speed	7-10 ft/s	10 ft/s
Battery Run Time	> 9 minutes	46 minutes



Labeled Assembly



Self-righting



Lifting an Opponent

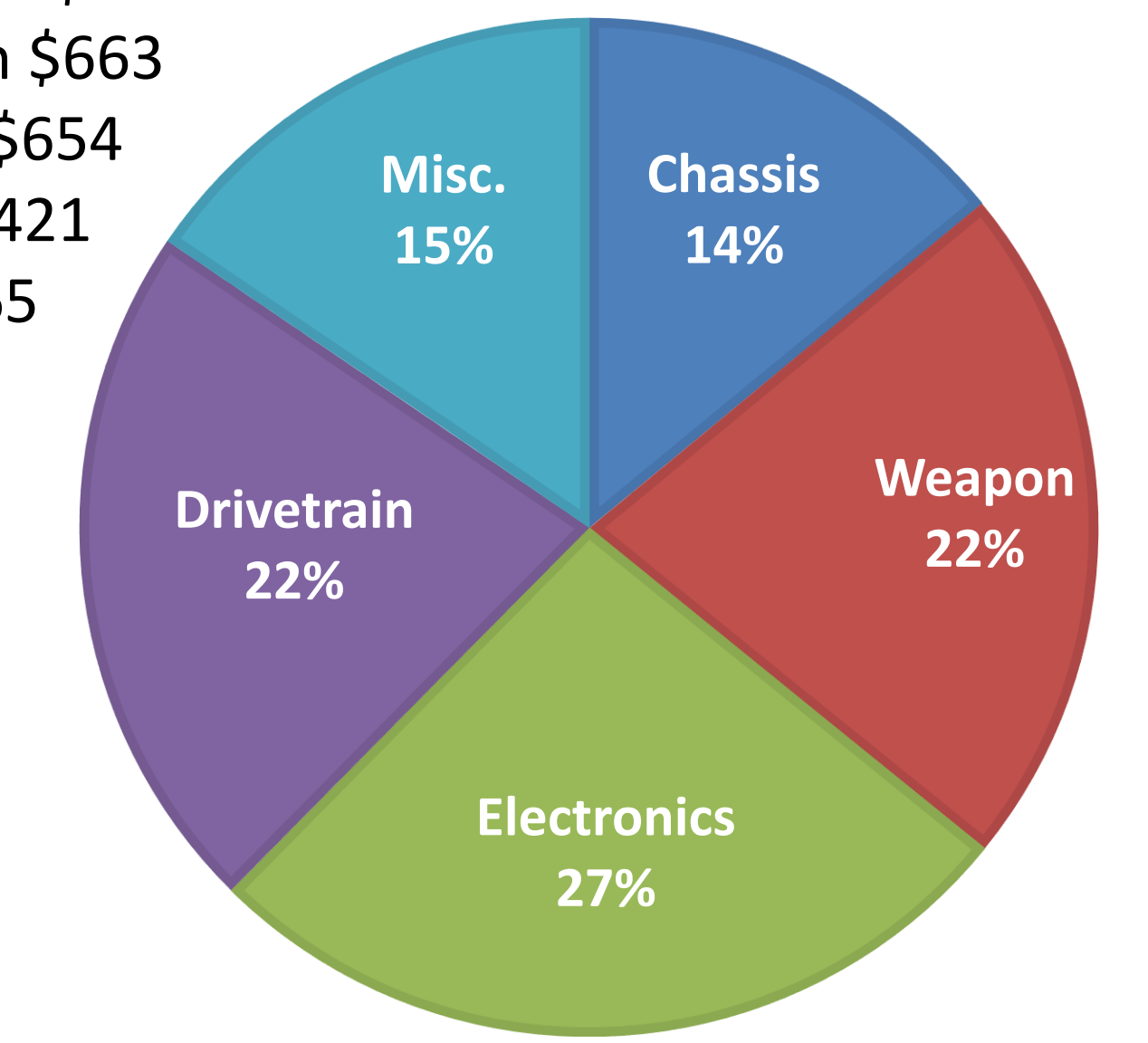
Safety

Considerations made during design:

- High Factor of Safety (Range 2-20) in chassis, drivetrain, and weapon
- Kill switch
- Designed prong covers for the weapon while not in use

Budget

Electronics \$797
Drivetrain \$663
Weapon \$654
Chassis \$421
Misc. \$465



Timeline

Milestones	Begin	End
Rules and Regulations	24-Aug	19-Sep
Research	29-Aug	26-Sep
Concept Generation	12-Sep	10-Oct
Design Convergence & Assembly	3-Oct	1-Dec
Engineering Analysis	17-Oct	1-Dec
Purchase Parts	21-Nov	20-Feb
Manufacturing	30-Jan	20-Mar
Testing	30-Jan	27-Mar
User Practice & Strategy	27-Feb	3-Apr
Bengal Bot Brawl	4-Apr	