NMT TEAM 1 BATTLEBOT

NEW MEXICO TECH
SCIENCE • ENGINEERING • RESEARCH UNIVERSITY

Background & Objectives

Robot combat is an event where the abilities of different robots are tested against each other by combat. All of the robots are custom-built machines that fight using various methods to incapacitate each other. The BattleBot Team #1 will create a three pound robot to compete at the NMT BattleBot Competition in the Spring of 2021. The battlebot will fight three, five minute rounds against another battlebot.

Design Specifications

- Battlebot design must adhere to NMT Battlebot Competition rules
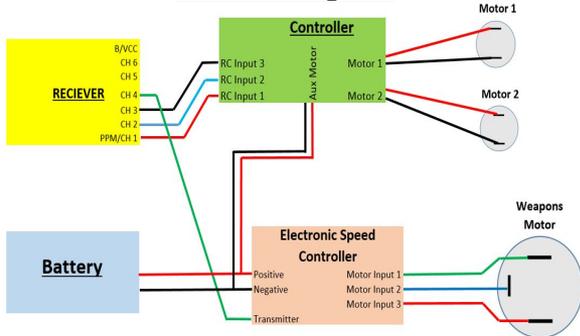 - Budget of $700
  - Total weight under 3lbs

Design Process

- A QFD was used to help decide what features the battlebot design would have this semester
- Horizontal spinning blade was chosen for high damage and vertical stability
- A low profile design was chosen to avoid being flipped
- The frame was made to be invertible and the wheels are perforated on each side to control the battlebot no matter position
- A rear wedge was designed for defense and to help protect inside components
- UHMW was chosen over titanium for the body and frame for high impact resistance and easy workability
- Pololu 25D gear motors are used to drive the battlebot for their balance torque and speed efficiency.
- Pololu TRex dual motor controller will power the drive and weapon motors
- Flysky 6-Channel 2.4GHz RC controller and FS-iA6B Receiver are used to send signals to the battlebot for control
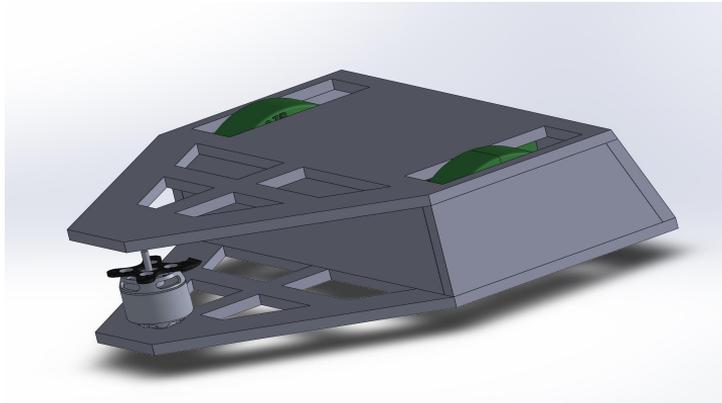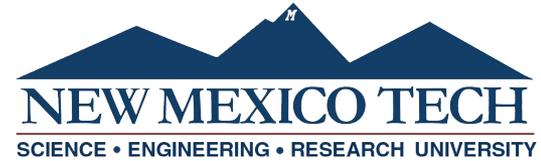
Future Work

- Cut the battlebot frame using a CNC machine
- Mount all components in the frame
- Test the running capabilities of the motors and battery system
- Test effectiveness of various weapon designs
- Assemble all components to determine weapon weight
- Annihilate opponent(s) during spring fling.

Circuit Diagram

Figure 1

Figure 2- Isometric View of the Battle Bot

Fall 2020 Team

Design Team Members

From Left: Trevor Brown, Ryan Flynn, Heath Williams, Curtis Earnest, & Ruben Cruz

Acknowledgements

- Dr. Kooktae Lee - Battlebot Team 1 Advisor