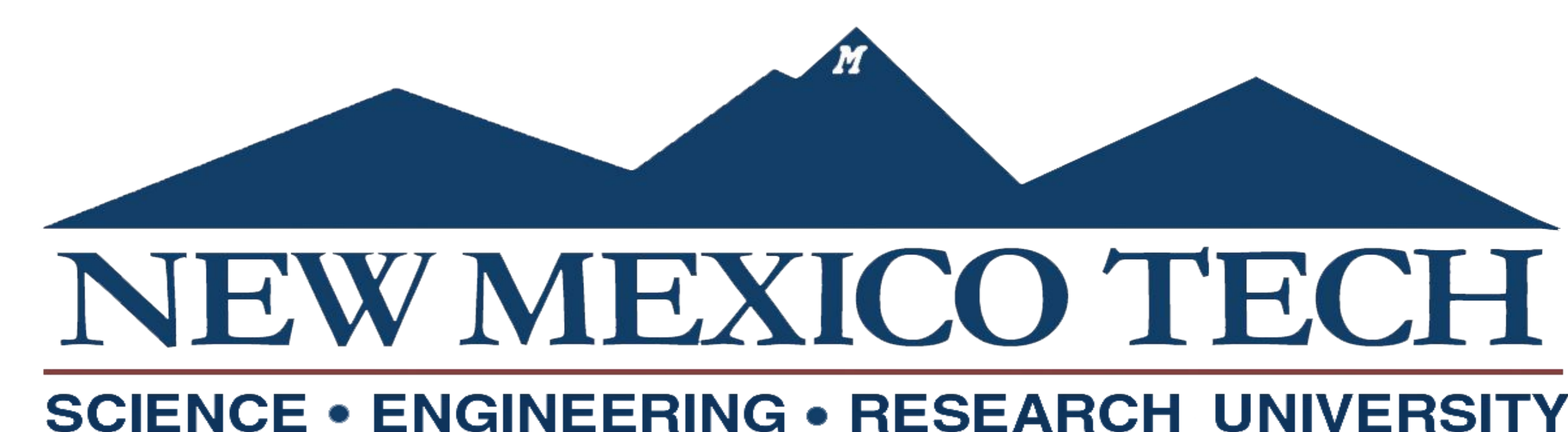


NMT Battle Bot Design Team #1

Spring 2021



Background & Objective

Competitive robot combat is when two or more custom-built machines use various methods to incapacitate or expel rival robots. Generally, the Battle Bots are remotely controlled and fight for three to five minute rounds. The NMT Battle Bot Team #1 has created a three pound Battle Bot to compete in the first New Mexico Tech Battle Bot competition on campus.

Design Specifications

- Total weight must be less than 3 lbs
- Safety switch and lock for the weapons system
- Do not exceed the total budget of \$600
- Battle bot design must conform to rules of the NMT Battle Bot event

Semester Progress

- Fully assembled final prototype and wired all electrical components as shown in the circuit diagram below
- Tested multiple blades for efficiency on different materials

Circuit Diagram

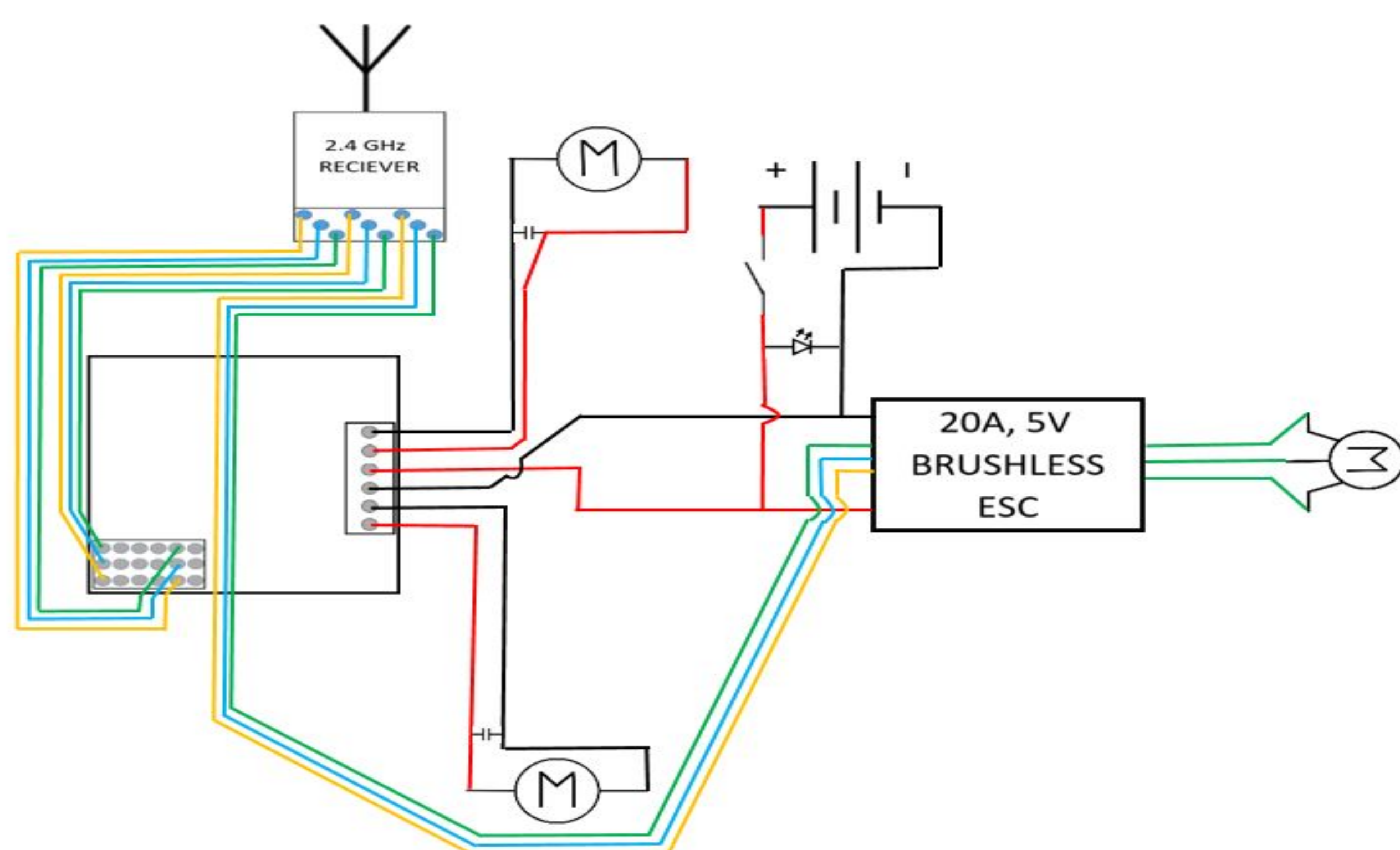


Figure 1. Circuit diagram for the Battle Bot

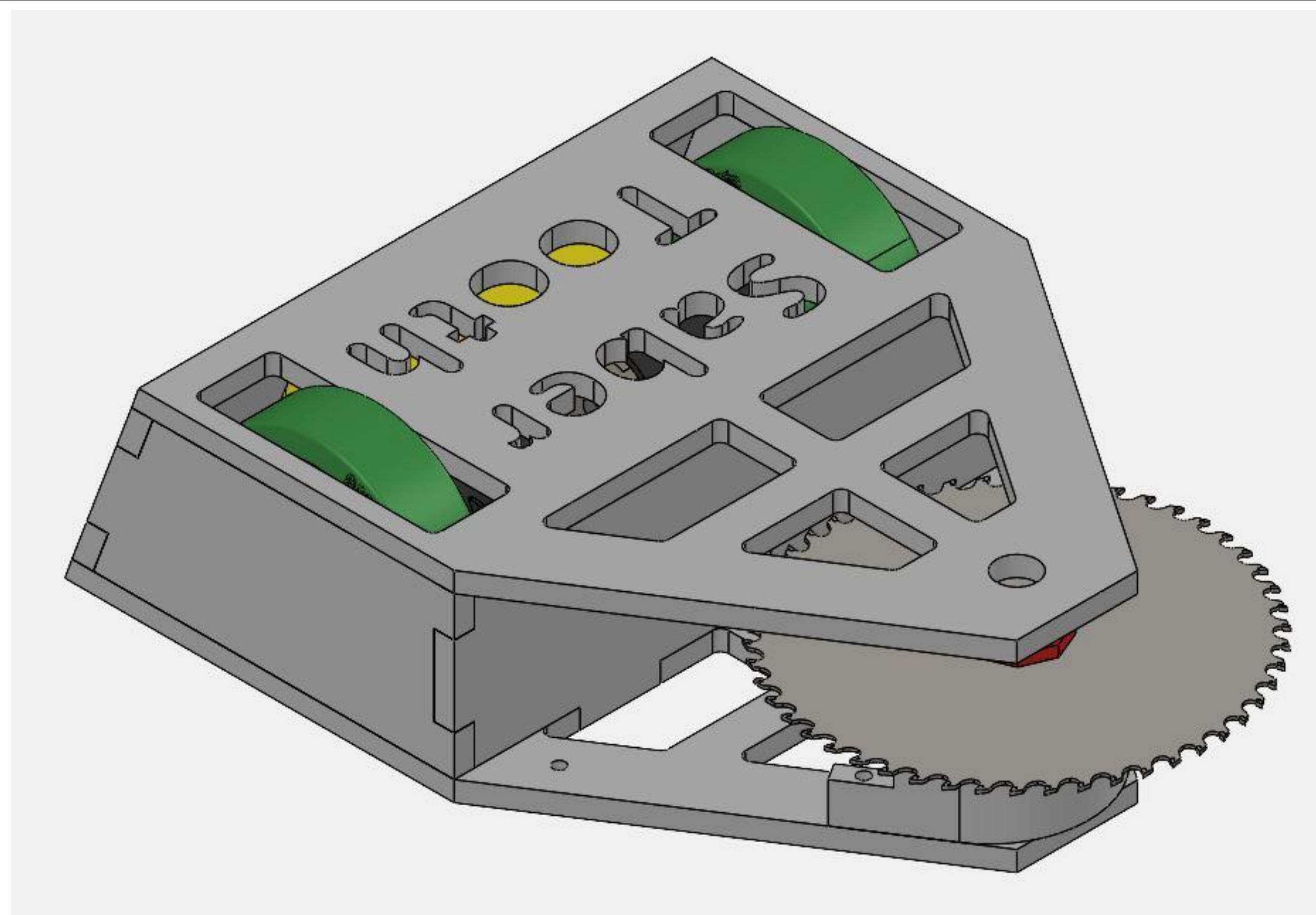


Figure 2. Isometric view of the CAD model (to view the full CAD model in 3D scan the QR code above)

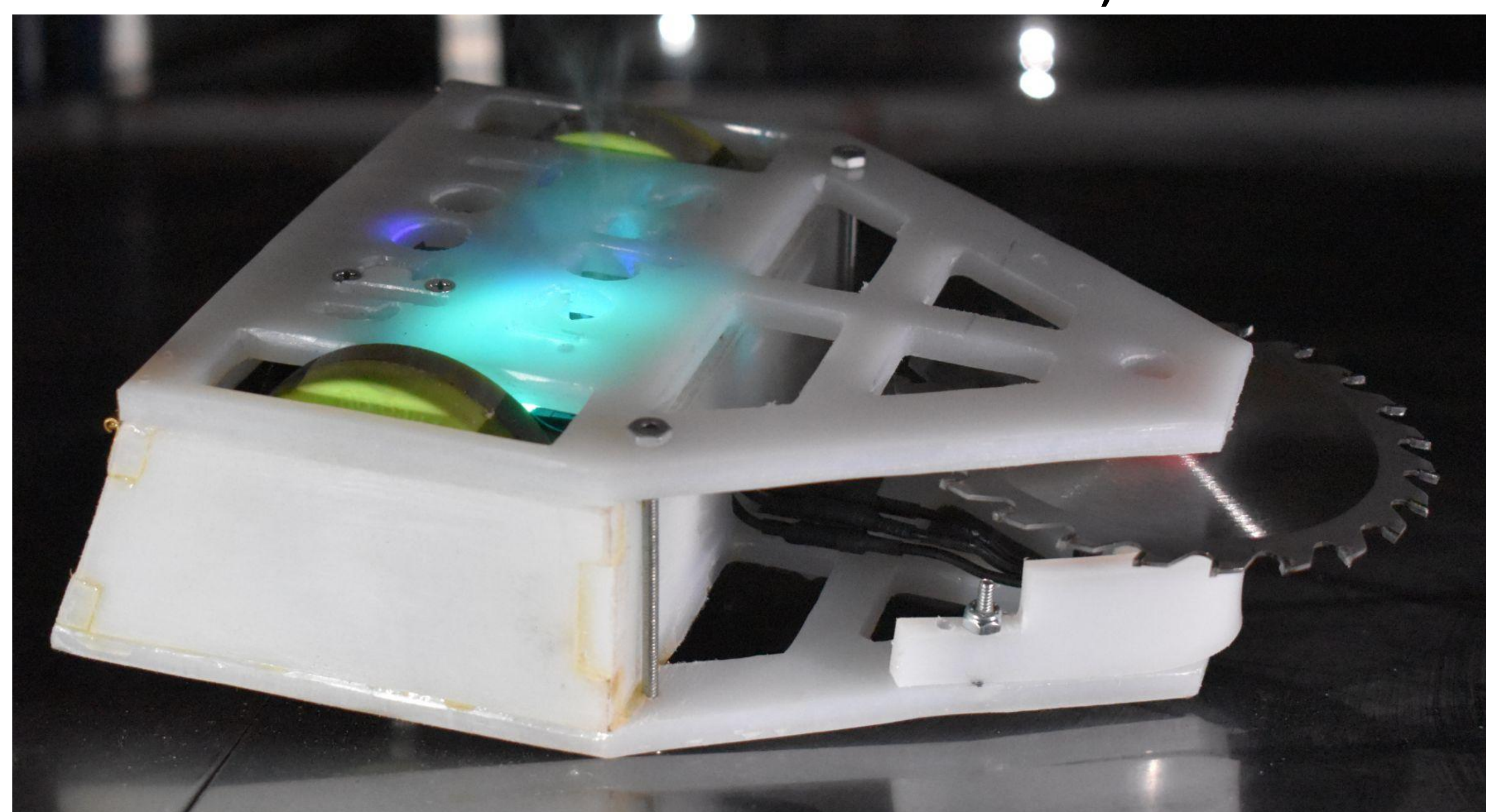


Figure 3. Current Battle Bot

Design

- UHMW frame for light chassis yet maintaining a high impact resistance
- Added tabs into frame for support, strength, and ease of assembly
- Glued the chassis together with epoxy to eliminate excess hardware and reduce weight
- Features two gear motors to drive the Battle Bot
- Circular saw blade for cutting and kinetic impact potential
- Saw mounted with a FingerTech Blade Hub, so additional mounting holes are not needed in the saw

Final Specifications

- The Battle Bot weighs 2 lbs. 13 oz
- 4.5" TAICHIV Tungsten Carbide Circular Saw with 24 teeth
- Two 20.4:1 Metal gear motors
- Turnigy Aerodrive brushless outrunner motor with a 20A ESC
- Pololu TReX Jr DC motor controller
- Controlled by Flysky FS-i6X 6-channel RC transmitter

Future Improvements

- Widen the chassis to allow more space for electronics
- Mount a bearing into the top plate to help hold the weapon motor securely
- Increase gear ratio of drive wheels to gain more speed to maneuver around
- Add Front skid plate to improve mobility
- Design a Steel blade hub or bolt the blade to the hub to keep weapon active

Spring 2021 Competition Placment

3rd Place

Spring 2021 Team Members

(From Left to Right)

Trevor Brown, Curtis Earnest, Heath Williams
Jared Cannon, Dade Lincoln, Ruben Cruz



Acknowledgements

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