ET NAVSWARM

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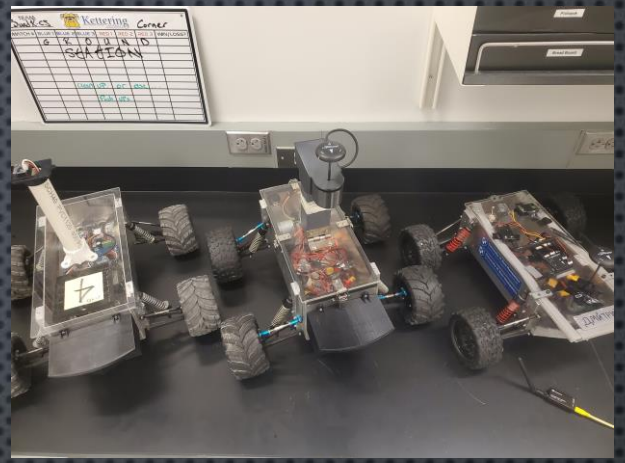
Advisors: Yu, Mahmud, Thein (ME)

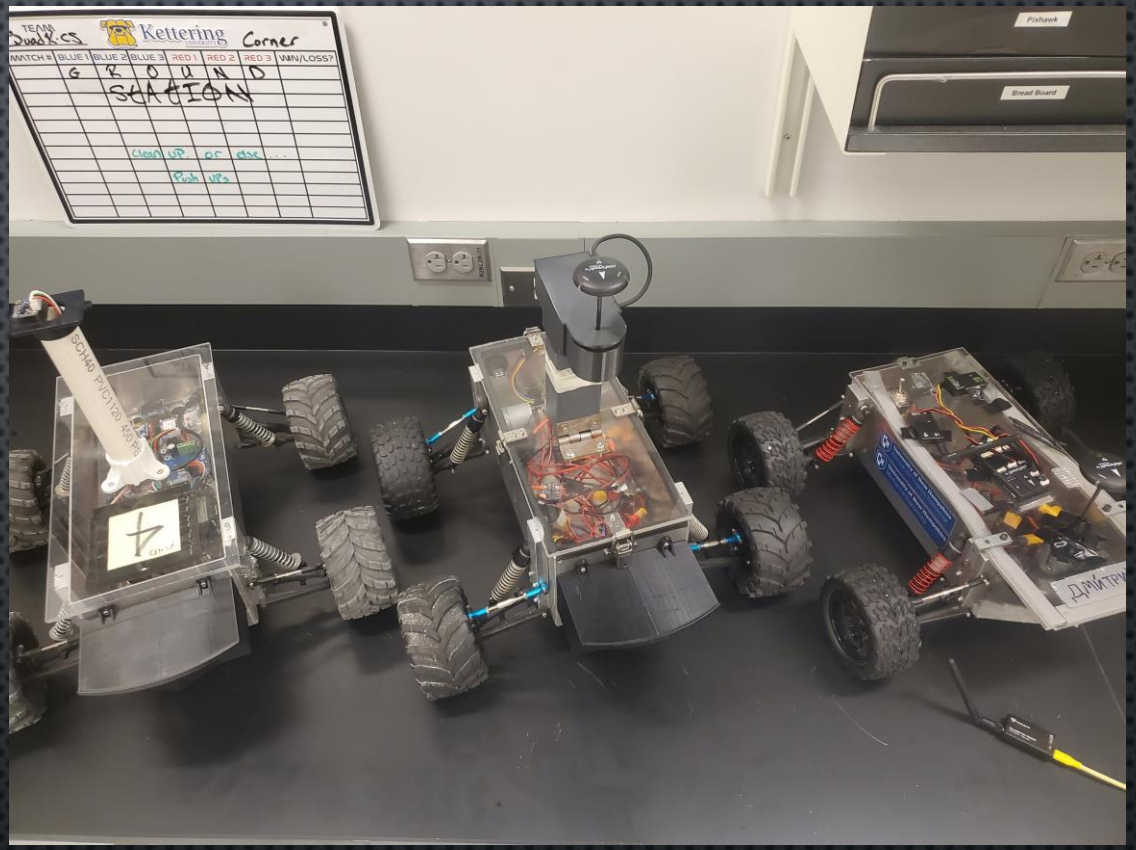
WHAT IS ET NAVSWARM?



- FLEET OF AUTONOMOUS ROVERS
- GOAL OF PROSPECTING FOR EXTRATERRESTRIAL MATERIALS
- INTEGRATION WITH OTHER ACL PROJECTS

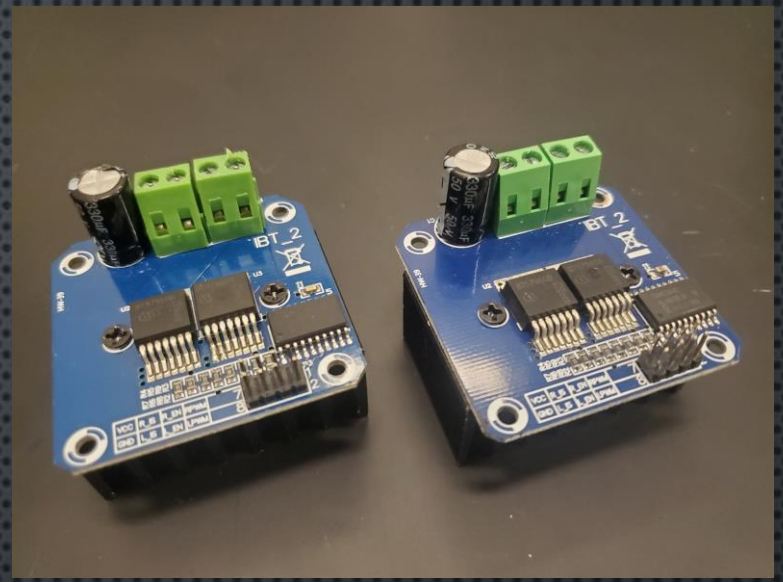
CURRENT STATE

- ARDUINO-BASED ROVERS
- PIXHAWK-BASED ROVERS
- SENSOR ARRAY
- TEAM
- AUTONOMOUS CONTROL
- DOCUMENTATION



MY CONTRIBUTION

- WIRING DIAGRAM
- MESS OF WIRES
- ESC
- BATTERY MONITORING



WHAT I WILL USE

- MULTISIM – CIRCUIT DESIGN
- KICAD – PCB LAYOUT
- JLCPCB - FABRICATION
- LAB EQUIPMENT – TESTING AND VERIFICATION

Proposed Budget

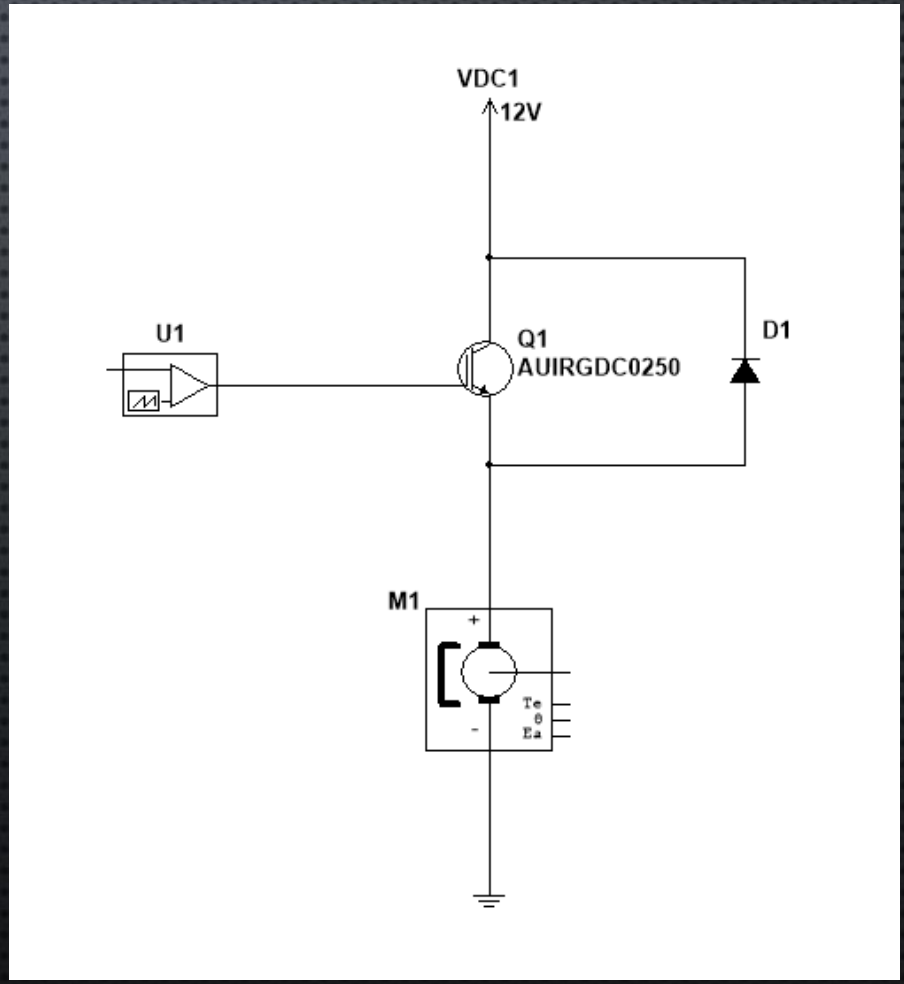
- Raw materials
- PCB fabrication
- Not including whole rover cost or launch cost

Design Considerations

- Brushed speed control (PWM)
- Ease of troubleshooting (Low battery indicators)
- Robust design (Sturdy mounting)

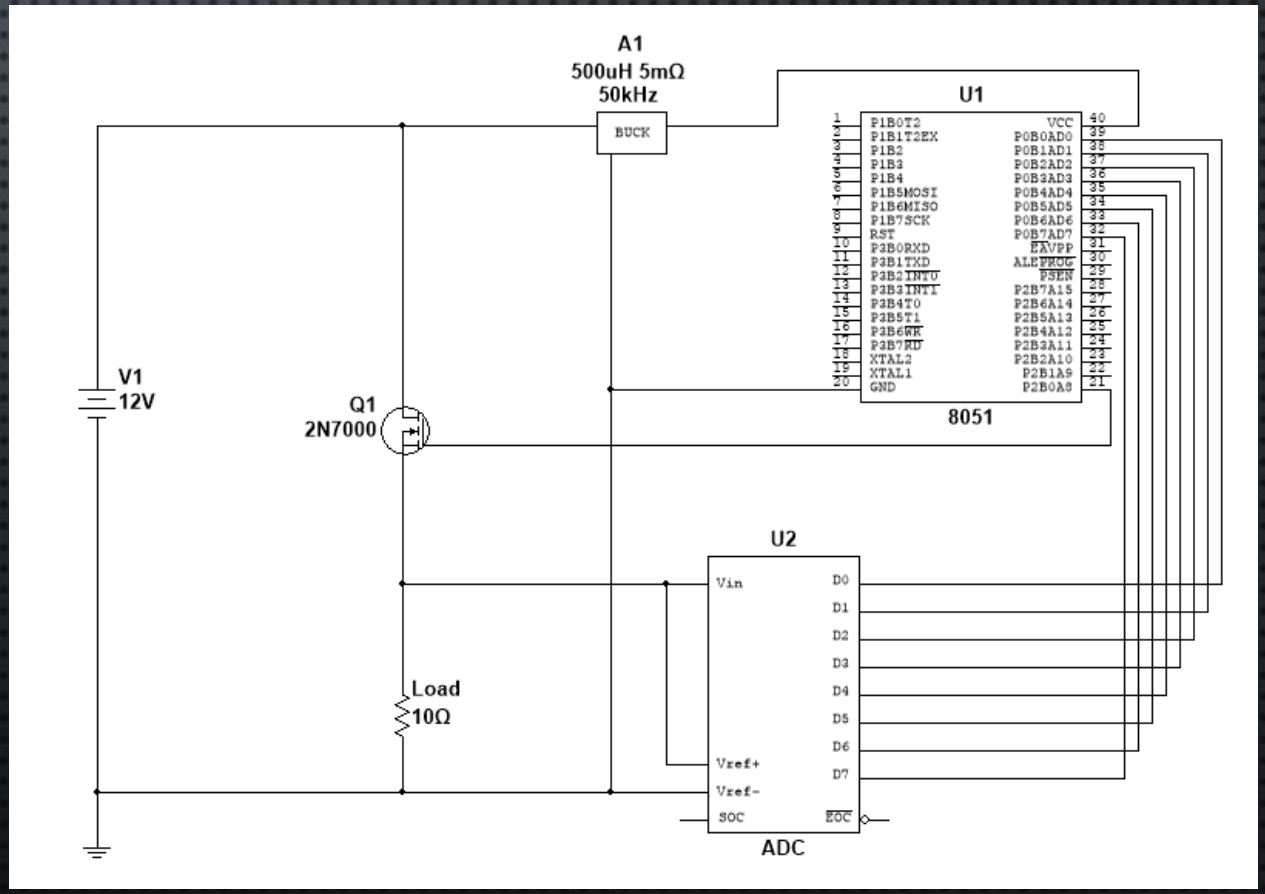
SPEED CONTROLLER

- IGBT



BATTERY MONITOR

- FET
- BUCK CONVERTER
- 8-BIT ADC
- MCU



Projected Timelines

- Event planning
- Design
- Fabrication
- Testing/Programming
- Revisions
- Conference prep

Q/A