IEEE SECON ROBOT

ECE CAPSTONE TEAM #1

Tennessee TECH

ELECTRICAL TEAM

Callie Battenfield
Caz Bilbrey
Liam Counasse
Adrin Jackson
Conor Orr

MECHANICAL TEAM

Colby Adams
James Howell
Steven Jordan
Zachary Wisti

Skills

Callie: Coding & Microcomputers

Caz: Soldering & Blender

Liam: AutoCAD & Electronics

Adrin: Power Analysis & Hardware Implementation

Conor: Coding & PCB Design / Assembly

01. PROBLEM

The objective is to autonomously navigate a prebuilt course and accomplish assigned tasks within a specified time frame to optimize point acquisition.

02. CONSTRAINTS

The team spirit subsystem must be bright and blink.
Nav must be close to the line
It must traverse the course in under 1:30.

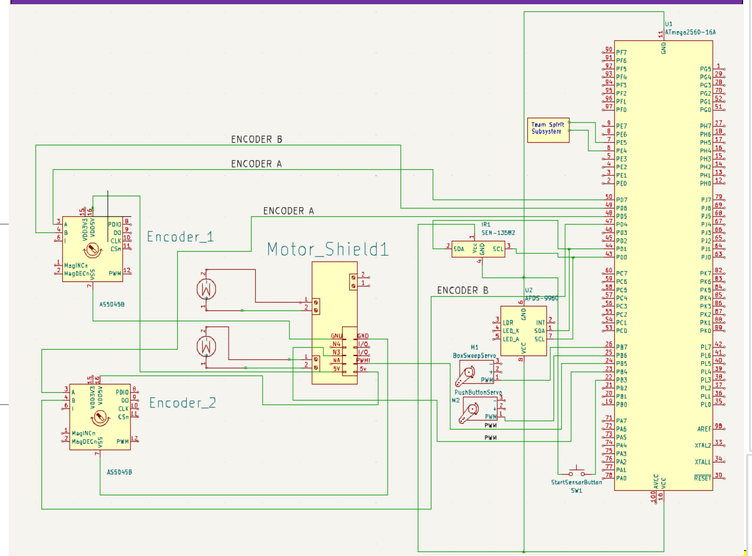
03. SOLUTION

SYSTEMS:

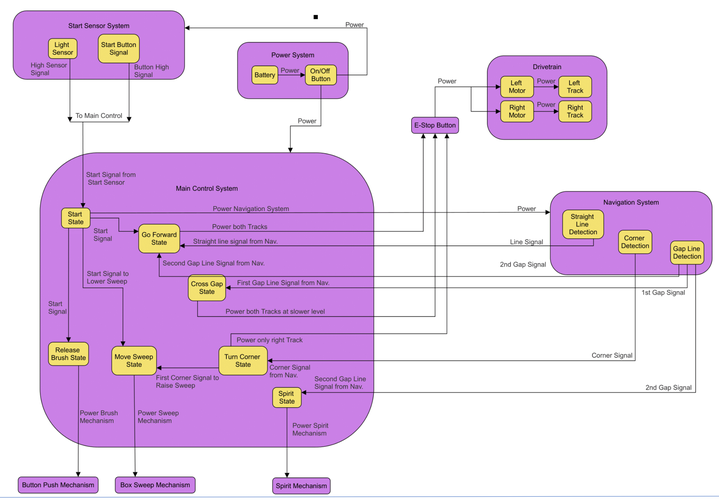
Chassis
Start Sensor
Navigation
Button Push
Team Spirit
Motor
Power
Box Sweep

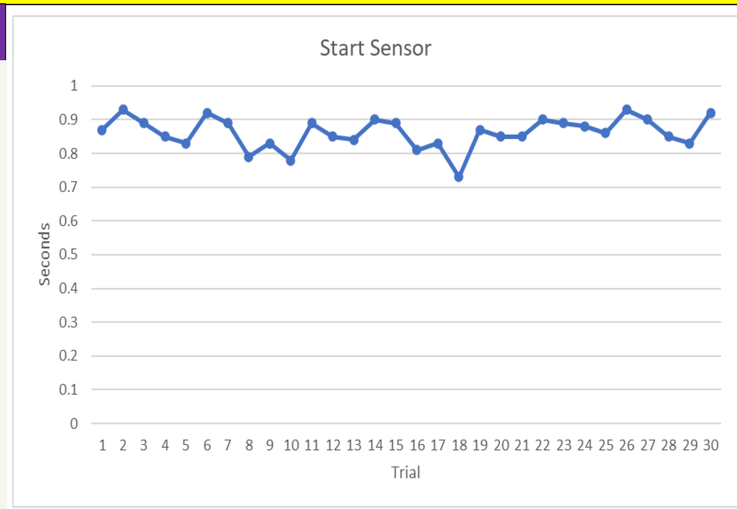
The robot was divided into eight modular components to enhance comprehension and streamline the assembly process, facilitating the integration into a cohesive physical structure.

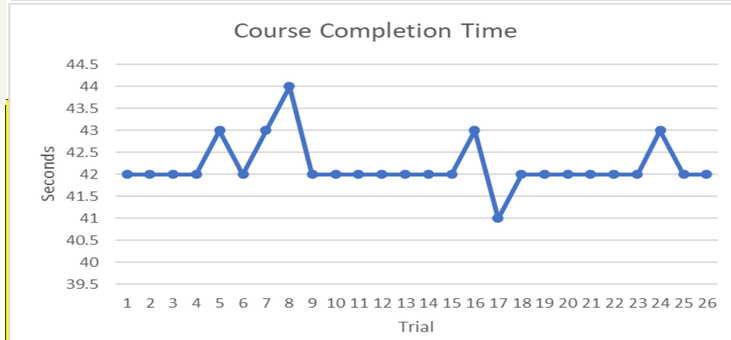
04. ANALYSIS

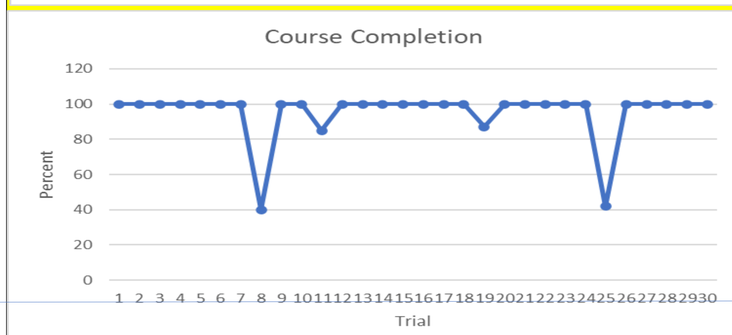


Overall Block Diagram









Skills

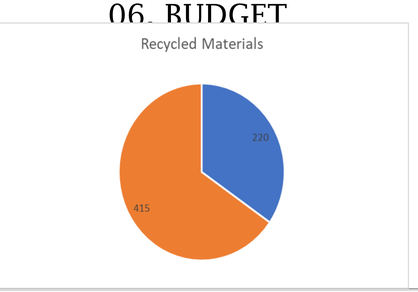
Colby: Matlab & Solid Works

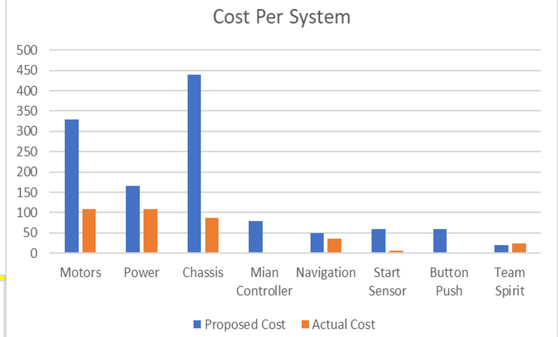
James: 3D Printing & Machine Design

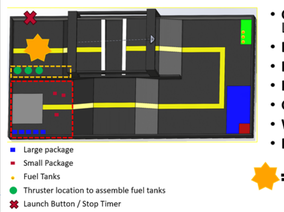
Steven: Construction & CNC Manufacturing

Zachary: Welding & Tooling

06. BUDGET







- **Gray** = Robot Assembly Pad / Start Location
- **Dashed-Red Box** – Package Pickup Zone
- **Blue** = Package Delivery Location
- **Red** = Small Package Delivery Location
- **Green** = Fuel Tank Pick Up Location
- **White** = Indicator To Grab Zip Line
- **Dashed-Orange Box** – Fuel Tank Assembly

=: Thruster Fuel Tank Assembly Zone and Launch Pad Zone
Run Completion By Pressing Launch Button / Stops Timer