



# Boeing Autonomous

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# Project Overview

**This project focuses on integrating autonomous navigation and control systems into a stock buggy. The vehicle will be able to perform assigned tasks autonomously, while still supporting a manual drive mode.**



Brake Team

Steering Team

Throttle Team

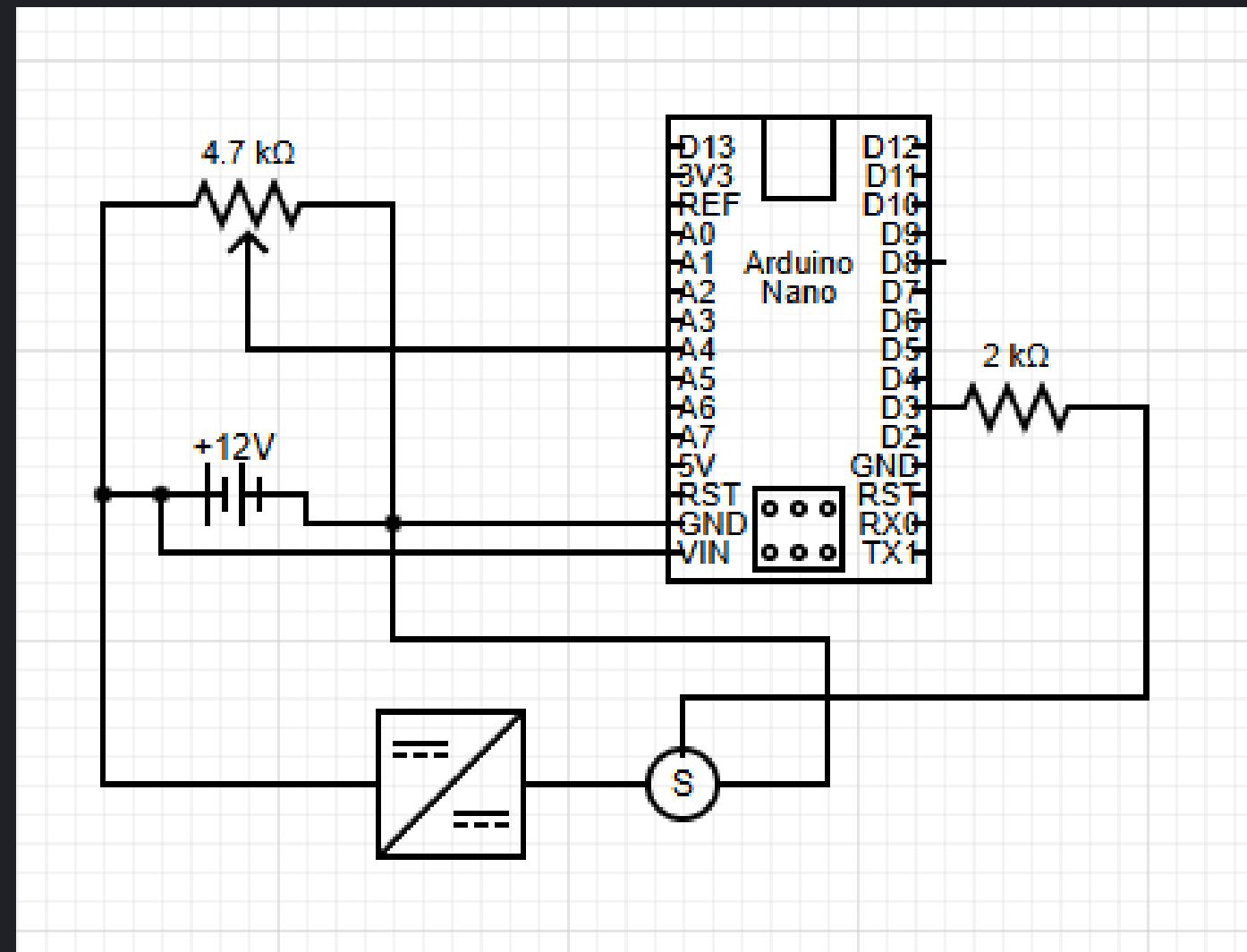
Environment Processing

Marketing

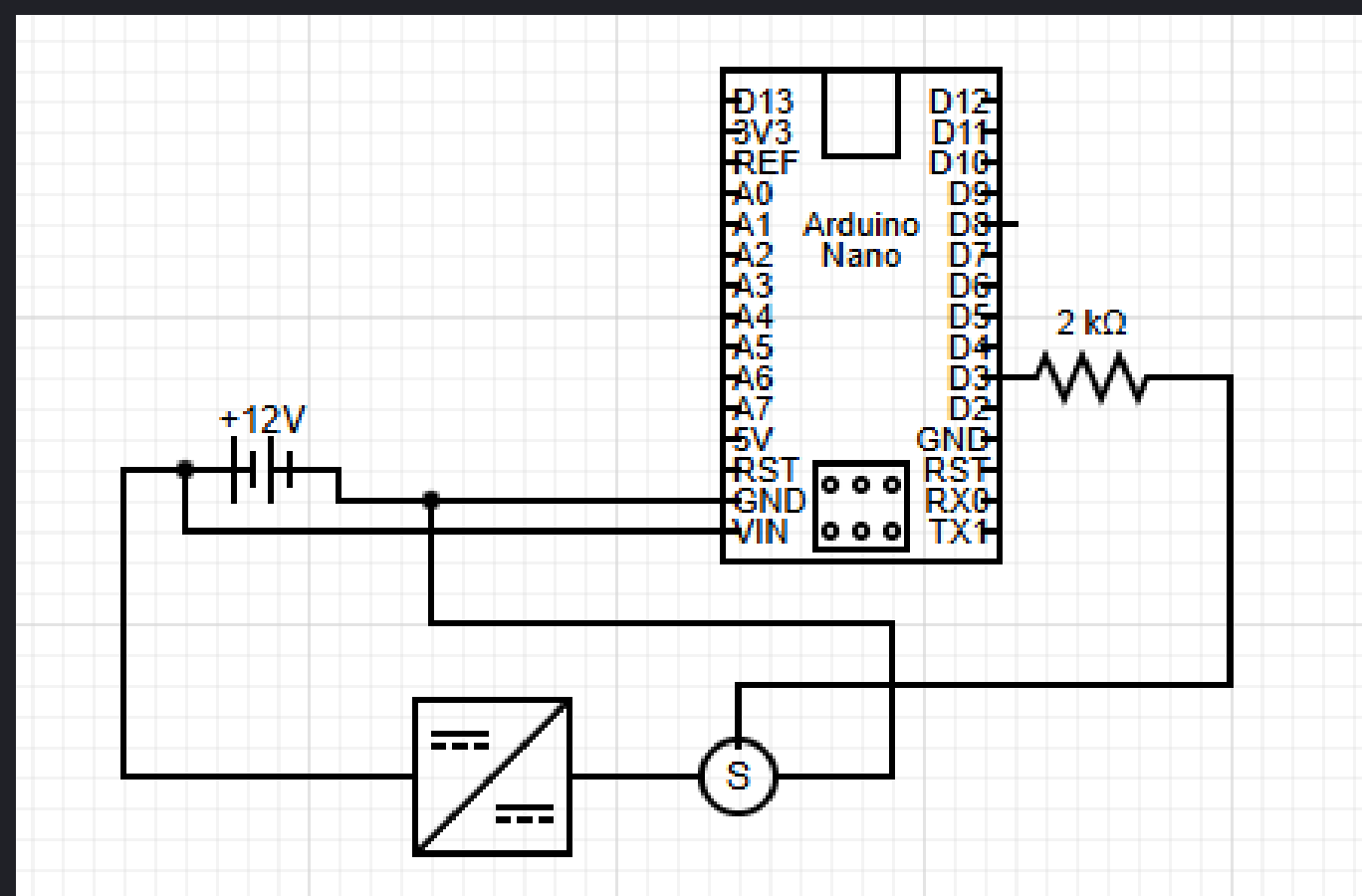
Budget

Future Plans

# Brake Team

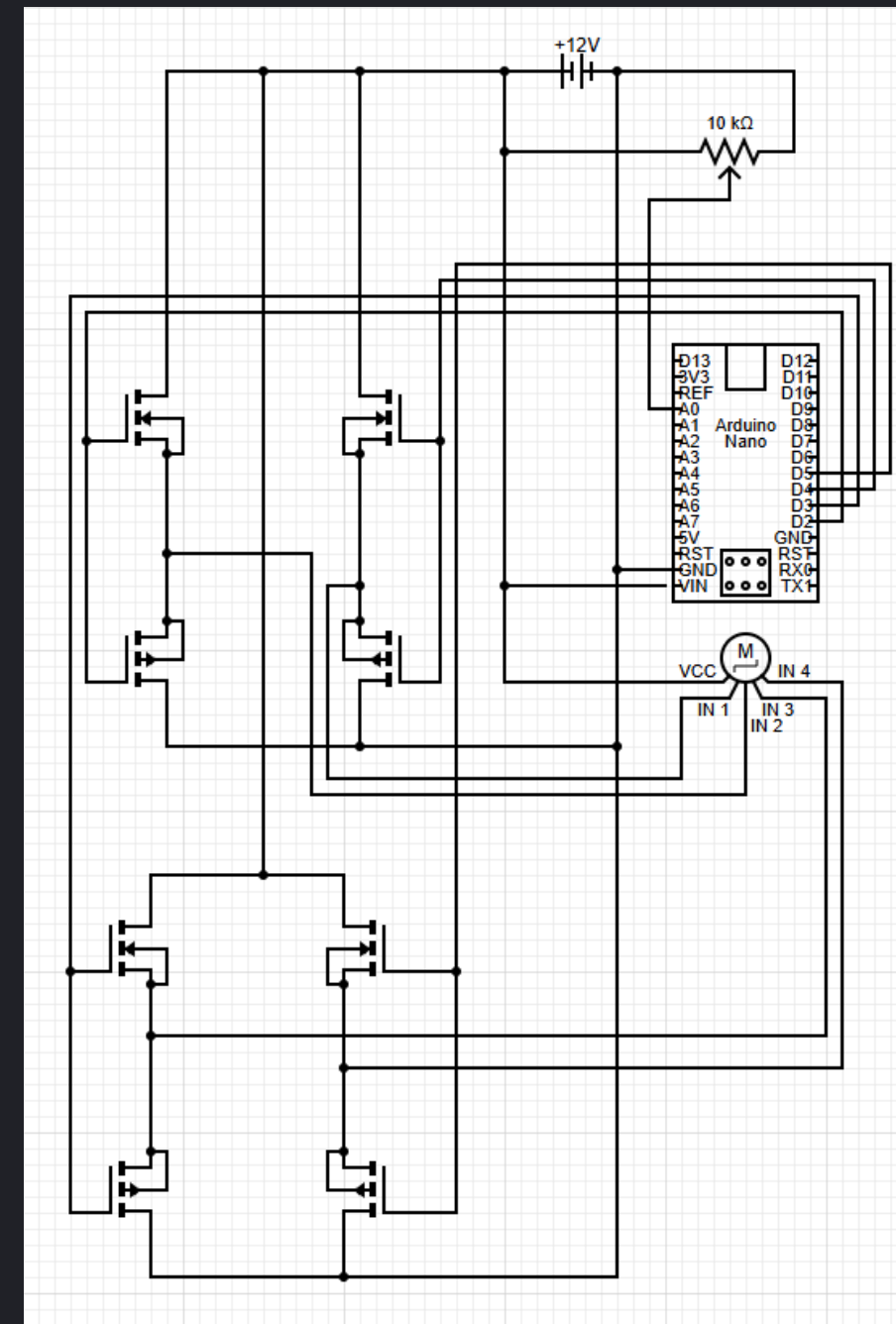


# Steering Team





# Throttle Team



# Environment Modeling

- **Neural Network-based object detection**
- **Stereoscopic Depth Perception for distance estimation**

# Marketing

Website



Logo Design



Instagram Page





# Budget

Purchased Materials		
Category	Description	Cost (\$)
Go Kart		1,750.00
Fire Extinguishers	safety	37.78
Custom Domain	for website	17.18
High Torque DC Motor	Braking	26.57
Hydraulic Gear Pump	Braking	47.80
Stepper Motor	Throttle	32.88
Fish scale	measurements	8.74
Gas	for kart	4.21
Graphic Designers	made logo	100.00
Income	Boeing	5,000.00
Income	GoFundMe + Chipotle fundraiser	738.38
Total Income		5,738.38
Total Expenses		2,025.16
Remaining Funds		3,713.22

Anticipated Expenses	
Category	Cost (\$)
50A inline fuse with holder	14.00
ESC	19.99
Voltage regulator	6.99
Hose Clamp kit	6.49
Reservoir	16.99
Rotary Encoder	2.00
Mounts	10.00
Mounting Hardware	2.00
Electrical Box	13.99
Arduino nano	6.00
Wiring harness	7.99
Geared DC motor	30.00
Potentiometer	3.00
Timing Belt	5.00
Potentiometer	3.98
3D Printed Mounts	26.97
Driver for Stepper Motor	19.65
Electrical Wire	7.99
Total	203.03

# Future Plans

- Develop an API for controlling mechanical level systems
- Establish electrical design standards to reduce complexity and cost
- Perform safety tests to determine fail states and mitigation strategies
- Validate manual override capabilities to ensure driver control when needed
- Construct a simulated environment using strategies outlined in this presentation
- Design and implement autonomous navigation strategies within the environment
- Transition from 12V power supply to 24V to improve efficiency and reduce cost

## Key Highlights



Environment Navigation

Optimal Manual Control

Failsafe Analysis

Cost Optimization

# Thank you Any Questions?

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