Project Proposal

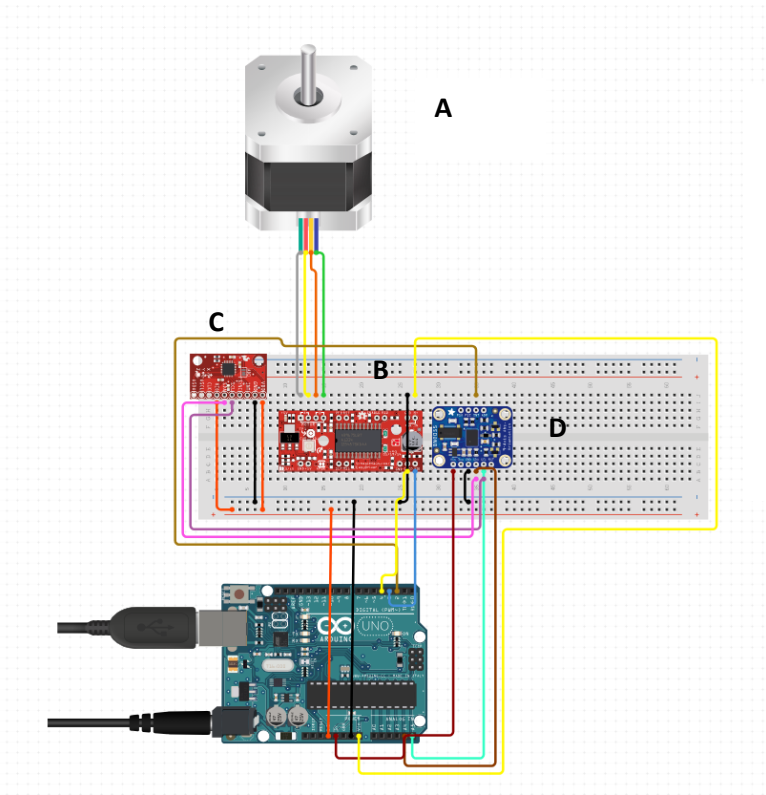
Student Name:	Caleb Oviedo-Blomquist

Project Title:	Canard-Based Rocket Roll Control System

Project Description: *Briefly describe your objective using non-technical terms. Example: "I will make a coffee bean roaster by adding a microcontroller, temperature sensors, and a solid-state AC switch to an off-the-shelf consumer-grade popcorn maker."*

I plan to make a roll control system using canards, a microcontroller, stepper motor, Inertial Measurement Unit, and 3 axis gyroscope.

Diagram: Include a diagram schematically depicting your system. A circuit diagram of how the components will be connected is the best.



A) 12 V Stepper Motor Connected to a gearing system for canard control
B) Stepper driver (One depicted not one to be used)
C) 6-Axis Gyro and Accelerometer
D) 9-DOF Inertial Measurement Unit

Sensors/Inputs*:* *List the sensors you will use. Include the quantity to be sensed and the type of signal. Choose a name for the sensed signal. Example: "Temperature sensor: Resistance Temperature Detector (RTD): Analog voltage 0–5 V: Temp1." If you are still looking for some important information, say so.*

Adafruit 9-DOF Inertial Measurement Unit: Digital I2C Connection, Angular velocity Vector and Linear Acceleration vector

6-Axis Accelerometer and Gyroscope: Digital I2C Connection, linear acceleration and angular position

Actuators/Outputs: *List the actuators you will use. Include the type of actuation and the form of the actuation signal, including voltage, current, and power requirements. Choose a name for the actuation signal. Example: "D/C motor: DeWalt brushed d/c motor: 24 VDC/250 A/1100 W: Motor1." If you are still looking for some important information, say so.*

Sparkfun Pro Stepper Driver: Digital Control for stepper motor

Stepper Motor: 12 V, 1.8deg/step

Canards: 3D printed gear train to stepper motor

Functionality: *Show how your system will handle inputs and outputs with a flowchart or other schematic. A flowchart should show the logic used in your code.*