GoFly Device Proposal

Device Proposed: Pixhawk Flight Controller
Purpose: This can be used as a main controller that gathers information and controls motors
Person(s) Proposing: Liu, Mahavan Sudakar
Date: 10/19/2018
Cost: $127.98 (Amazon)
Quantity: 2
Website (Link): https://docs.px4.io/en/flight_controller/pixhawk.html
Datasheet (Link):
https://github.com/PX4/px4_user_guide/raw/master/assets/flight_controller/pixhawk4/pixhawk4_technical_data_sheet.pdf

Sensor and Control

Sensor: Pixhawk is a Flight Measurement Unit that senses orientation, outside influences, GPS positions, etc.
Motor Control : PWM control over motors, support up to 8
Voltage: 4.9-5.5V for normal operation, 6V max
Current: At lease 3A continuous for normal operation, 120A max
Connections Required: PWR1, PWR2, GND (redundant power)

Physical Characteristics

Mounting Location: Mounted on the frame using vibration-damping foam pads (included in the kit). It should be positioned as close to your vehicle's center of gravity as possible, oriented top-side up with the arrow points towards the front of the vehicle.
Size (mm): 44mm x 84mm x 12mm (Width x Height x Thickness)
Mass (kg): 5.18 g
Wire Gauge: 14-16 awg

Issues and Solutions

Issues Foreseen:
1) Need to get sensor data without software
2) Pixhawk has some standard motor configurations. It might be easier to use those instead of customize control.

Solutions to Issues:
1) Pixhawk is compatible with off-board control with Raspberry Pi. By connecting Pixhawk to R-Pi, and writing programs to R-Pi, all sensor data can be gathered.
2) Can work with people in prototype to learn about motor configurations.

Safety Hazards:
Not likely, since Pixhawk is a digital controller.

Document created by: Liu

Test Plans - Upon Lead Approval

Tests to be Conducted:

1) Test 1: Use Python on PC to build connection with Pixhawk
2) Test 2: Connect Pixhawk with Raspberry Pi

Approved By:

Document created by: Liu