Dynamic Balancing System for UAV Propellers

Red Tail Hawk Services, Inc.

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Project Summary:
Small Unmanned Aircraft suffer from poor positional performance when the propellers in the associated propulsion system induce vibration. Propellers that are balanced using commercial static balancing systems help reduce the magnitude of vibration, but do not do the job sufficiently. Red Tail Hawk Services Inc., gave the opportunity to a team of senior of St. Thomas to come up with a solution to this process. This project addresses the design, development, integration and testing of a commercial small propeller **dynamic balancing system**.

Design Goals:
Measure imbalance of an off the shelf UAV propeller using a *dynamic balancing* system. Balance the propellers to FAA standards and create an electronic balance report.

Design Constraints:
- Dynamically balance propellers between 0 to 10,000 RPM
- Balance time per propeller must be less than 5 min
- Scalable for 5'' to 20" diameter propellers

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