

Gyroplane Anti-Tip Over Landing Gear

Project Overview

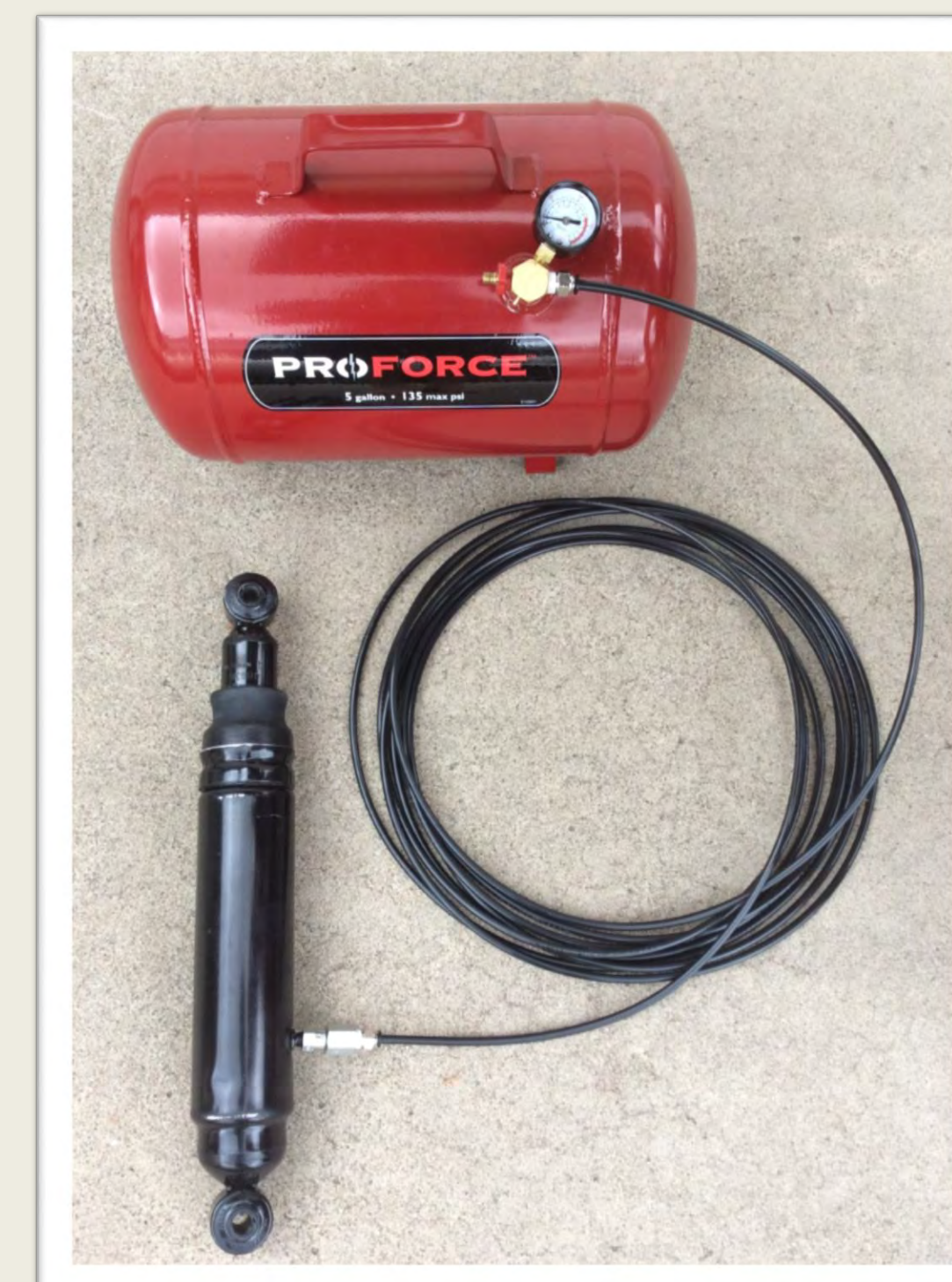
The goal of this project was to create lightweight emergency landing gear that will autonomously adjust to allow a gyroplane to safely land on uneven terrain with an elevation difference up to two feet.



Design Description

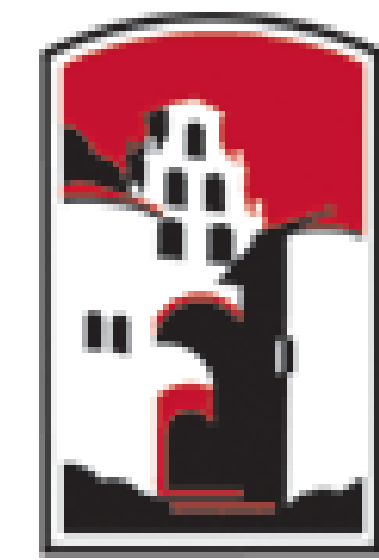
As shown below, each side of the landing gear can extend downward a distance of two feet. This movement is controlled by the Monroe Air Shocks which inflate and deflate with compressed air from the air tank. Four electric air valves open and close to allow air to flow in and out of each shock.

As the gyroplane lands, the distance to the ground is measured by a LIDAR device and its angle is measured by an accelerometer. An Arduino is then programmed to use this data to open and close the air valves if the gyroplane is tipping to the left or the right. This allows the plane to adjust itself as it lands and helps prevent tipping over on uneven terrain.



Sponsor Information

This project was sponsored by John Roundtree who works with the Popular Rotorcraft Association in San Diego, CA.



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