11-21-2019

**Automatic Landing Gear**

Daniel Battles  
*Southwestern Oklahoma State University*, battlesd@student.swosu.edu

Cindi Albrightson  
*Southwestern Oklahoma State University*, cindi.albrightson@swosu.edu

Follow this and additional works at: [https://dc.swosu.edu/et_student](https://dc.swosu.edu/et_student)

Part of the Aviation Safety and Security Commons

**Recommended Citation**

[https://dc.swosu.edu/et_student/4](https://dc.swosu.edu/et_student/4)

This Poster is brought to you for free and open access by the Engineering Technology at SWOSU Digital Commons. It has been accepted for inclusion in Student Research by an authorized administrator of SWOSU Digital Commons. An ADA compliant document is available upon request. For more information, please contact phillip.fitzsimmons@swosu.edu.
Automatic Landing Gear
Daniel Battles

Problem Statement:

Airplanes that are equipped with retractable landing gear are typically more desirable by pilots because of the benefits that come from this. There are also cons to having retractable landing gear, and having to remember to retract or extend the gear is one example. A switch on the dashboard must be flipped in order to activate the gear at the right time. In the incident that an airplane lands without the landing gear down, this is referred to as a “Gear up landing”. Gear up landings are usually caused from pilot error, which in many cases means that the pilot simply forgot to lower the gear before landing. With this automatic landing gear system, the stress of remembering to retract or extend the landing gear will be one less thing to worry about.

Methods and Materials:

This product operates on what the distance of the plane is from the ground. A sensor that will read 400 feet is mounted in the belly of the plane with a small glass eye that it can see through. That will work with whatever suitable avionics system is equipped on the specific plane, once programmed to do so. An aftermarket landing gear switch will be installed in replacement of the factory switch that came in the plane. The switch for the automatic system will still have the “Gear Up” and “Gear Down” option like the factory switch, but will also have a setting in between those for “Automatic”. Having the switch set up in this way makes it as easy and convenient as possible to override the automatic system whenever needed. When the switch is in “Automatic”, the sensor will be reading the ground. As long as the sensor is sensing the ground, the gear will stay down. For example, anytime that the airplane is being taxied around, the sensor will read that the ground is within range and keep the gear down. There is a 5 second reading time on the sensor before it will activate the gear. On landing, the sensor will sense the ground at 400 feet and after 5 seconds of continuous reading, the ground will still be in range so the gear will extend down. On takeoff, the sensor will lose range with the ground once the planes altitude reaches 400 feet and the sensor will go 5 seconds without continuously sensing anything in range before it retracts the gear. Having this 5 second reading time will eliminate any chance of the gear being extended or retracted at the wrong time because of elevated obstacles that aren’t the ground. In the unlikely circumstance that the plane will be flying at low altitudes over mountains or anything, the gear switch can simply be put in the “Gear Up” position to override the automatic system.