

ACTIVE SUSPENSION FOR SEARCH AND RESCUE ROVER

Sponsored By Robotarium Research Labs UofC

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BACKGROUND

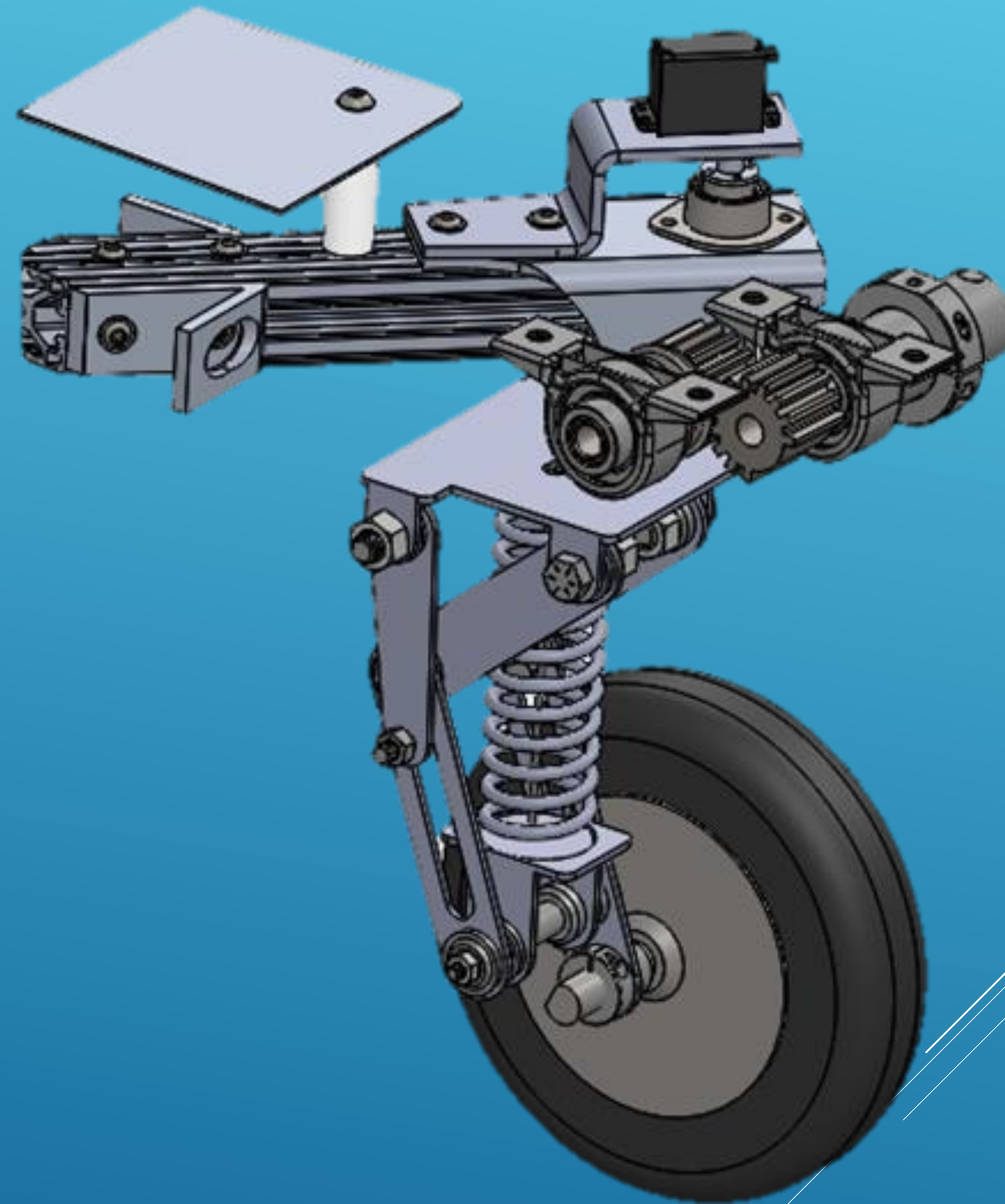
The Agile Ground Robot (AGRO) developed by the West Point US Military Academy can perform in-air stability maneuvers to always land with the wheels down. This serves to increase the deployability of the robot in a search and rescue operation. However, the AGRO lacks a suspension system and would likely suffer damage from a fall. Our project aim is to develop a system that would prevent any damage from a fall of 2 meters and increase the ability of the robot to maneuver over obstacles with a built-in jumping mechanism.

ENABLE STEERING

- Allow for omni-directional steering
- Each leg is a standalone unit
- The wheels are used to control the orientation of the vehicle in mid air.

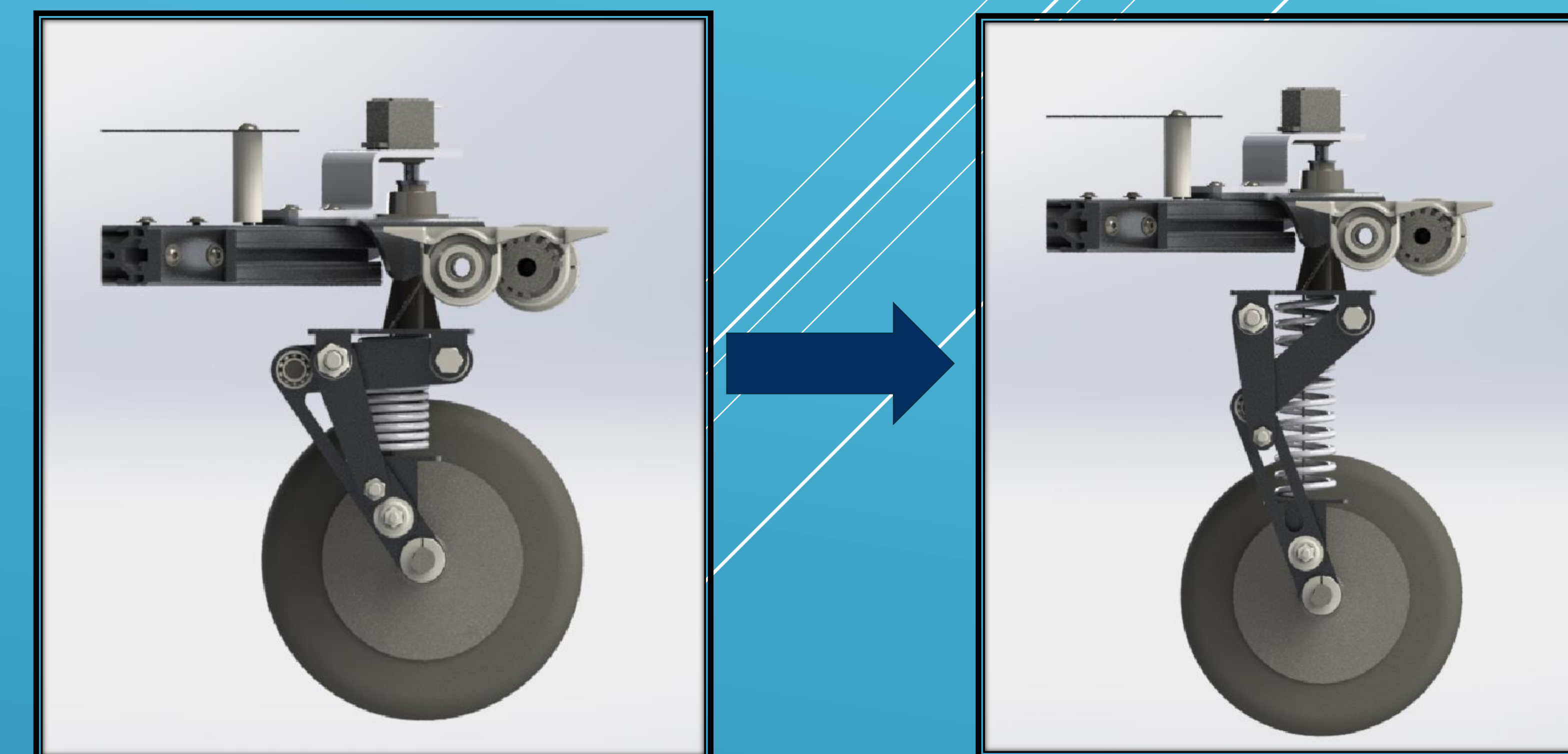
SPECIAL THANKS TO

- Student Machine Shop
- Kurt McAlister, Jason Steinburg
- Project Supervisor
- Dr. Alex Ramirez-Serrano



LEG DESIGN

The kinematic structure of the leg is designed to allow the rover to jump from a stand still position and still travel forward over obstacles.



JUMPING

- Jumping system can achieve a height of 8 inches.
- The mechanism uses a notched gear to release the spring

