Red Georgia Power UAV Drone Tree Removal System

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Project Background

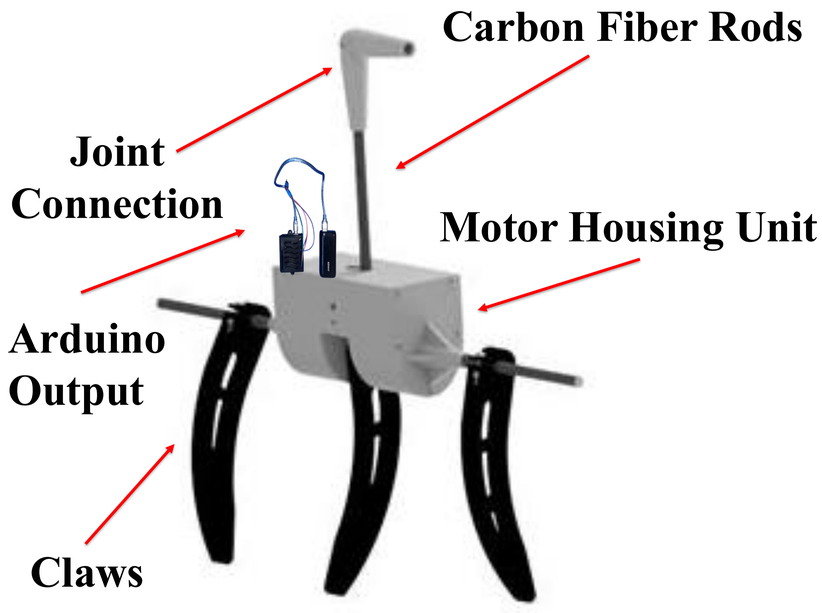
Georgia Power supplies electricity to nearly 3 million customers statewide, and it utilizes a fleet of Unmanned Aerial Vehicles (UAVs) to augment its personnel. However, when storms occur, power outages are often encountered largely because of downed tree limbs. To quickly restore power in these events and make use of its technological assets, Georgia Power wants to answer…

How can UAVs be used in power restoration efforts to remove downed tree limbs on damaged power lines?

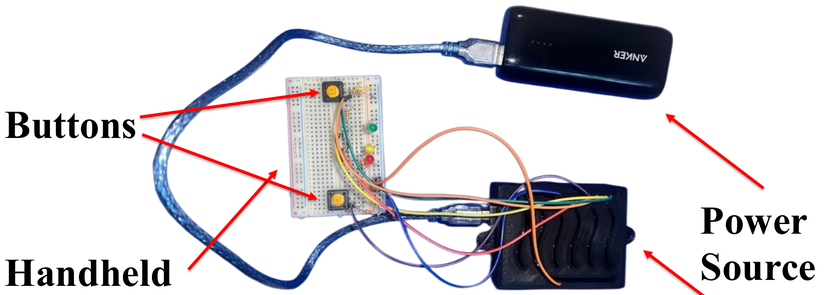
Requirements for the Proposed Solution

- Design, prototype, and test a tree limb removal system
- Mountable to a GA Power UAV
- Controllable from the ground
- Can remove live limbs up to 3" in diameter and 5 pounds
- Adheres to FAA and OSHA regulations

Solution Details



Tree Claw CAD Model



Tree Claw Controller

Project Impact

1.3 Million — Georgia Power customers without power after Hurricane Helene, often in hard-to-reach areas

3 Hours — Average time necessary to restore power after storm damage

Our drone attachment offers the ability to reach these affected areas and operate in austere environments, providing a **safer work environment** that distances personnel from dangerous power lines. Additionally, there is potential for a **reduction in required personnel on-site**, since fewer employees with special safety training would be required for removal operations.

Recommendations

- Optimize claw design for improved branch grip
- Replace 3D printed parts with Carbon Fiber
- Implement an emergency release so the device can detach to protect the drone

DJI m300

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Client: Georgia Power - Steven Scarboro

Georgia Power