**TEAM 310**

Access to electricity directly affects our quality of life on a day to day basis. The impact of power loss can vary from minor to life-threatening risk in the fields of industry and healthcare. Over five million customers in the state of Florida depend on Florida Power & Light (FPL) to maintain a reliable supply of power. Utility companies such as FPL have line workers perform routine maintenance and repairs on active power lines to maximize customers satisfaction. Extreme height and proximity to high voltages make power line work one of the most dangerous jobs in the world.

For this project our team developed a robotic arm that assists in the daily tasks of power line workers. The arm is made up of three rigid links - controlled by air pressure and electrical circuits - which mimic human arm motion. The end of the arm can switch between multiple tools to accomplish different tasks. These tasks include removing preformed wire ties and lifting heavy power lines. Electrical parts and control systems are housed in the base of the arm to be insulated from the power lines. The arm is remote control operated by trained line workers up to a certain distance. The design incorporates a mounted camera at the end of the arm so that the operator can see the effective workspace. These qualities help to accomplish one of our main goals of separating workers from the dangers of power lines.

The robotic arm holds several advantages over traditional line work methods. This design will allow FPL to improve the safety, efficiency, and reliability of workers while performing their job. Our modular arm serves as a base model that could be built upon for other applications by FPL.