Hazardous Vegetation Detection in Right-Of-Way Power Transmission Lines in Brazil Using Unmanned Aerial Vehicle and Light Detection and Ranging

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Abstract : Transmission power utilities participate with kilometers of circuits, many with particularities in terms of vegetation growth. To control these rights-of-way, maintenance teams perform ground, and air inspections, and the identification method is subjective (indirect). On a ground inspection, when identifying an irregularity, for example, high vegetation threatening contact with the conductor cable, pruning or suppression is performed immediately. In an aerial inspection, the suppression team is mobilized to the identified point. This work investigates the use of 3D modeling of a transmission line segment using RGB (red, blue, and green) images and LiDAR (Light Detection and Ranging) sensor data. Both sensors are coupled to unmanned aerial vehicle. The goal is the accurate and timely detection of vegetation along the right-of-way that can cause shutdowns.

Keywords : 3D modeling, LiDAR, right-of-way, transmission lines, vegetation
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