

EXTRACTION OF POWERLINE CORRIDOR BY USING DRONE IMAGES AND ITS POINT CLOUD DATA

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Abstract

In today's world, it is critical to have an uninterrupted power supply for human activities, industries, and other operations that rely on electricity to work properly. Power lines are cabling that transports electricity from a power station to cities and villages where it is needed. They must be connected between the tower's frameworks. These towers and power line cables are constructed with safety and economic feasibility in mind. There is no insulating covering around these transmission wire lines. As a result, high vegetation around or under powerlines is one of the leading sources of short circuits that destroy power lines. Power lines in Sri Lanka have conventionally been studied using the traditional manner. The study's aim is to develop an automatic system for locating electricity line corridors and checking the clearance of the powerline corridor. Maintainers can quickly locate cut-off ranges and locations using this method, and it can be used for future power line construction. To determine the power line corridor and its safety ground clearance, 3D point cloud data can be used in combination with an automated method. This research was conducted near the Southern Campus of Kotelawala Defence University. The low-cost drone is used to collect data after choosing a suitable place. Python programming language was used to develop the final automated software. Drone photos were used to produce a point cloud as the result. When a point cloud is inserted as an input to the Python system, the output represents a power line, safety line, powerline corridor, and caution location.

Keywords: *Powerline Corridor, Point Cloud, Drone Images, Python*