The Usability Analysis of the Fourth Industrial Revolution Technologies in Environmental Geo-informatics with UAV

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The fourth industrial revolution puts great emphasis on environmental friendly development, despite the former revolution has resulted in environmental destruction. In the field of the fourth industrial revolution, the usage of drones and sensors for geo-informatics are gradually increasing as the airframe becomes smaller, lighter, and more diverse.

According to the recent studies, satellite or aerial images are actively applied to the vegetation analysis, but the data accuracy and a limited budget make it hard to research more deeply. In order to evaluate the practical usability of drones in the environmental geo-informatics field and also to reduce the expenses and time, it is necessary to obtain the optical(RGB) and LIDAR(LiDAR) photographs containing the horizontal and vertical data within a wide ranges of various vegetation and forested areas.

In this research, 3 sites were selected by considering the distribution of vegetation; those represent the east, west, and south regions with plentiful grasslands and shrubs in South Korea. Field surveys for validation were conducted within 1km2 accessible research areas respectively. By comparing the results with the research analysis, we will evaluate the usability of vegetational informatics. Consequentially, construction of drone-based optical and Lidar sensors is expected to provide the improved data for environmental policies.