Flood Disaster Map using UAV

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SUMMARY

Recently, the effect of climate change such as flood or local heavy rain has increased the damages to human lives and their properties. Especially, as a result of indiscriminate urban development, flooding has been occurred more frequently than before by an increased impervious rate, and the expanded area of flooding also generates an enormous amount of property loss. Since the expense for disaster restoration is considerable, the disaster-related problems are more needed to prepare in advanced. However, if the emergency already occurs, people must be evacuated properly first so that the damage can be minimized in the case. Even after the situation is terminated, an exhaustive record of the situation is necessary in order to prevent a recurrence. While the various researches for minimizing flood damages are being studying, disaster maps such as Flood Hazard Map, Evacuation Map, and Inundation Trace Map is established. But those disaster maps are still inefficient in terms of accuracy which are based on inadequate investigations in a lack of time and cost.

In this study, digital image-based disaster map will be made by using UAV. And it will suggest more effective disaster management and its methods by analyzing the correlations between the information of flooding in the past and future. First, to make a three-dimensional image map, the UAV can be used to shoot a scene of the field, and the data made by UAV will be processed as available data. By using the program which was developed by LX(KOREA LAND AND GEOSPATIAL INFORMATIX CORPORATION), a distance and gradient of the slope can be measured. And it is possible to improve the accuracy of a Flood Hazard Map by analyzing the historical information of flooding combined with a visualization of the slope direction. With the strengths of UAV such as freshness, speed, accuracy, and affordability, it will be allowed to have a faster initial investigation and more accurate Inundation Trace Map beyond the geographic limits and its following safety reasons. The purpose of this study is to contribute to developing a quick

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and accurate reaction capability such as calculating the cost of damage or the range of restoration on the basis of a fast and accurate investigation and monitoring.