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Feasibility Analysis of Unmanned Aerial Vehicle Survey for Outer Boundary Surveys

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Cadastral surveying is the intellectual and technical process by which the boundaries of each of the land parcels within a given area are defined in a consistent manner. The main problems of the Sri Lankan cadastral system are the increased time consumption, high cost and inefficient methods for data acquisition. In cadastral surveying mainly there are three operations, i.e. determination of boundaries, survey of boundaries, and the demarcation of boundaries. This paper presents a modern method of close-range photogrammetry using Unmanned Aerial Vehicle (UAV) as a solution in the scope of determining and surveying boundaries. This study analyses the capability of UAV surveys to function as a rapid, cost effective and accurate alternative to current data acquisition techniques in the hope of accelerating the cadastral mapping process of the country. The accuracy of UAV to survey outer boundaries was measured by comparing land extents of typical land parcels obtained via two methods, UAV and Total Station (TS). The results of this study show the point cloud generated from UAV images generate a similar extent output as conventional methods. The only limiting factor was boundary visibility which was not an issue in the research scope. The advantage of UAV systems lies in their high flexibility and efficiency in capturing the surface of an area from a low flight altitude.

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