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## The Processing of Image Data Collected by Light UAV Systems for GIS Data Capture and Updating

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**Abstract.** The collection and updating of 3D data is the one of the important steps for GIS applications which require fast and efficient data collection methods. The photogrammetry has been used for many years as a data collection method for GIS application in larger areas. The Unmanned Aerial Vehicles (UAV) Systems gained increasing attraction in geosciences for cost effective data capture and updating at high spatial and temporal resolution during the last years.

These autonomously flying UAV systems are usually equipped with different sensors such as GPS receiver, microcomputers, gyroscopes and miniaturized sensor systems for navigation, positioning, and mapping purposes. The UAV systems can be used for data collection for digital elevation model DEM and orthoimages generation in GIS application at small areas. In this study, data collection and processing by light UAV system will be evaluated for GIS data capture and updating for small areas where not feasible for traditional photogrammetry. The main aim of this study is to design the low cost light UAV system for GIS data capture and update. The investigation was based on the aerial images which recorded during the flights performed with UAV system over the test site in Davutpasa Campus of Yildiz Technical University, Istanbul. The quality of generated DEM and ortho-images from UAV flights was discussed for GIS data capture and updating for small areas.

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