Bradley Andrew
Ryan Elliott

CONSTRUCTING THERMAL 3D MODELS FOR ENERGY USAGE ANALYSIS

Abstract

According to the European Commissions, the largest potential saving of energy lies within commercial and residential buildings. A considerable amount of energy loss from buildings is due to heat or infrared radiation. For this reason, we have been collecting infrared data and creating 3-dimensional models of various structures located on the University of North Georgia Dahlonega campus. Images and data were obtained using a drone and a FLIR Pro infrared camera. Using a specialized software, we were able to analyze infrared images. Through the combined use of Agisoft Metashape and many high-resolution infrared images, a 3D model with thermal data can be produced. Through this research, we developed the tools and workflow necessary to analyze the energy loss of these models.