

# Application of UAV Drone Technology in Mining Industries of Nepal

Ashim Babu Shrestha, Punya Oli and Sumitra Shrestha (Nepal)

**Key words:** Engineering survey; Geoinformation/GI; Mine surveying; Photogrammetry; Remote sensing; Risk management; UAV, Mining, Surveying, Mapping

## SUMMARY

Nepal is the one of the most topographically variation country as altitude varies from 59m to 8848.86m above mean sea level. The most of the mines and minerals lies in mountain areas of Nepal and were mined extensively in the past before Second World War II.

The mountain areas have very high topographical range, steeply slope, and cliff areas so it is not easy to use for mining surveying and mapping with human. Mining is an important activity of the primary sector with strong economic development of Nepal. The human mining surveying and mapping one of the most challenging parts all over the world because mining is an incredibly dangerous industry, So, UAV done technology is easy to use for surveying and mapping in mining industries in Nepal.

The main objective of this paper is UAV drone technology to use image capturing for surveying and mapping of open caste mining and surface area of the industries of Nepal. GIS and Photogrammetry software used for image processing, mapping of mining area. The contribution of this paper is to low cost and easy to use for supporting mining industries with very high less than 10cm spatial resolution multispectral imagery with land cover details map. After image processing we can get Orthophoto, contours, digital terrain model, digital surface model and 3D model of the survey area. The resulting map to indicate the quarry area, mines area and lease area as well as dump site, stock yard and top soil yard as well as land cover map.

In this article, it is briefly described the use the UAV drone on mine survey in Nepal which is fast, safe, reliable, more accurate, easy to calculation of volume, analysis and interpretation from the continuous image data.

---

Application of UAV Drone Technology in Mining Industries of Nepal (11514)  
Ashim Babu Shrestha, Punya Oli and Sumitra Shrestha (Nepal)

FIG Congress 2022  
Volunteering for the future - Geospatial excellence for a better living  
Warsaw, Poland, 11–15 September 2022