



” Orthophotomap - how an investment looks like on an aerial photo

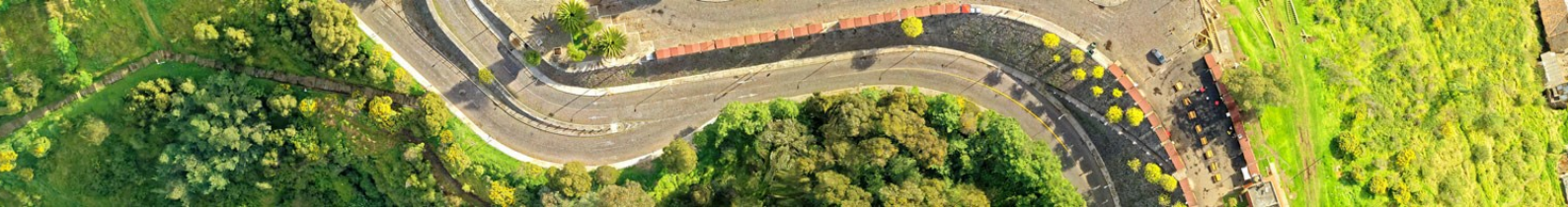
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AMRON CENTRE ANALYSIS

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Aerial photography is an innovative form of object representation and serves many areas of the economy, including the construction sector. Aerial photographs are commonly used to present investments at various stages. Photos taken by satellites, as well as unmanned aerial vehicles - drones, are used to create an orthophotomap. Orthophotomap created in the process of transformation aerial photos is invaluable in the real estate industry, for construction investments, planning and site inventory.

WHAT IS AN ORTHOPHOTOMAP?

Orthophotomap is a raster image of terrain surface in orthogonal projection (perpendicular to the photographed plane), identified with a classical map, presented in an appropriate mapping. It is created as a result of processing and superimposing hundreds of satellite or aerial images, including images taken by drones. Orthophotos are used in many areas of the economy. The most popular examples of use of such maps are freely available map services, such as Google Earth or Geoportal. In Poland, the orthophotomap database is maintained by the Main Geodesist of Poland, under the Act amending the Geodetic and Cartographic Law. An example of an orthophotomap - all of Poland and a part of Warsaw.



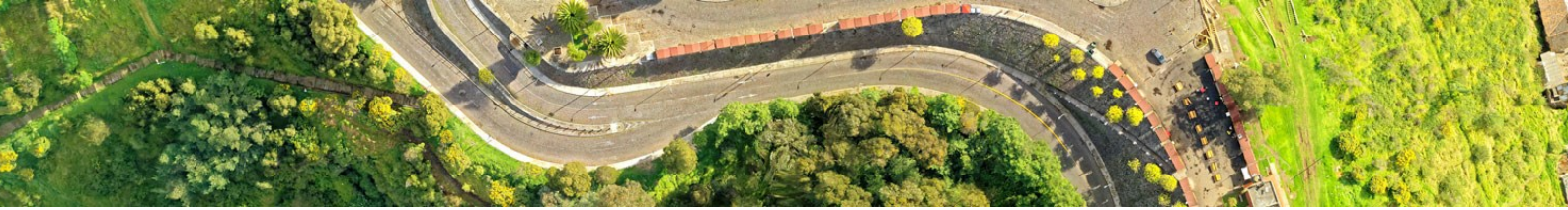
Source: www.mapy.geoportal.gov.pl

WHY DOES IS MATTER HOW A PROPERTY LOOKS IN AN AERIAL PHOTO?

Orthophotomap is widely used by local governments and administration. In several cities in Poland orthophotomap is effectively used for calculating property tax payments. In this case orthophotomap, satellite images are analysed by artificial intelligence algorithms. Algorithms recognize buildings and structures and calculate their supposed area. The results are compared with other data collected by local governments. In result, it is possible to identify new buildings, extensions to existing facilities or business activity. They make it possible to identify changes in the area and height of buildings, as well as the condition of buildings. As a result, it is possible to detect the unauthorized building - illegally constructed, undeclared or erroneously reported buildings, which contributes to higher income for the cities.

THE USE OF ORTHOPHOTOMAP AND AERIAL PHOTOGRAPHS

Digital maps, photos and orthophotomap are used on many stages of a construction project: from presentation and planning to inventory, promotion and sales. Orthophotomap has therefore a wide range of ap-



plication also in the construction industry. It is used for monitoring and imaging particular stages of construction, road or railroad investments. It is helpful in planning an investment location and its influence on the environment. It can be helpful in creating investment offers. It make it possible to regulate planning fees and rationally plan the project costs. Photos often complement project and investment documentation.

Orthophotomap obtained from aerial photos can be successfully used also for land use planning and municipal management. By comparing images from different periods, it is easy to control and plan tree felling. It is also possible to identify wild dumps, as well as water and ground pollution. Orthophotomap is used when drawing up spatial development conditions studies, land development conditions or local spatial development plans. On the basis of the pictures it is possible to determine the purpose and actual use of the land. The photos may be crucial in classifying a plot of land as construction or agricultural.

Aerial photos allow to assess the state of the natural environment, including planning of various types of investments and their impact on the environment. This is often the case of public purpose investment areas with large impact on the environment and forest management. Such analyses enable to estimate the scope of work and minimize the costs. Orthophotomap as well as aerial photos taken by a drone are used for estimating real estate prices, as they enable to determine the actual state of the property. It is also useful during land and building registration. Aerial photos are used in many sectors of the economy for the inventory of land with large areas, pits and open-pit mines.

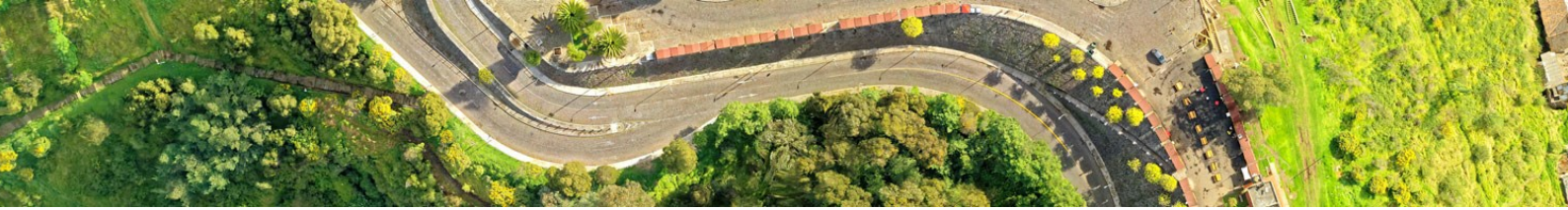
DRONES IN THE CONSTRUCTION SECTOR

New technologies are gaining popularity in all sectors of the economy, including real estate and construction. We don't need to carry out complicated analyses to know that real estate sales offers, which include aerial photos, are more attractive to potential buyers and in result properties are being sold faster than those, which do not have such photos in their advertisements. Modern marketing solutions enable a buyer to see the property and the surrounding area from a completely different perspective. The photo may encourage to seek for details of the ad. For a person interested in buying a real estate its surroundings are very important. It is much easier to show them in an aerial photo. Photos or video recorded by a drone complement the sales offer. This increases its attractiveness and shows the advantages of the location.

Aerial photography has evolved in recent years and the use of drones has become quite common. Better and better cameras and unmanned aerial vehicles enable to take more and more accurate pictures. The availability and prices of these devices make them accessible to anyone. With the use of drones, aerial photos and videos are taken and photogrammetric data is collected to prepare orthophotomaps. The use of drones in the construction industry enables the monitoring of ongoing construction work, verification of project implementation, as well as safety control during work at heights.

SUMMARY

The application of new technologies, including drones, to improve the implementation of investments, for administrative purposes and on real estate market is becoming increasingly common. However, it should not be forgotten that even the best technologies require control and supervision of a person with appropriate knowledge, skills and experience. The tool itself is often not enough to achieve the inten-



ded results. Using a drone requires obtaining appropriate authorizations. It is important to know the appropriate programs and algorithms. The development of orthophotomap is specialized task. Considering the ubiquity of new technological solutions, it is not surprising that illegal buildings, illegal tree cutting or business activities will be brought to light sooner or later.



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AMRON Centre

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