

Historical monument protection in Bavaria – per drone?

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The Bavarian Minister of Science Spaenle and the General Curator Pfeil presented a new concept for historical monument protection and conservation in Bavaria for 2020. They call on latest scientific results.

Wishful thinking or sustainable heritage conservation?

„In its variety the structural testimonials of past times give tellingly impressions of Bavarian heritage in wealth and culture shaping the identity of the Free State of Bavaria. “It is our cultural and political mission to maintain about 112,000 historical buildings and some 48,000 ground monuments as good as possible for the successive generations.” said Spaenle and then presented the new visionary Bavarian concept to preserve and conserve Bavarian heritage together with Matthias Pfeil, the General Curator: “Monument protection and monument conservation in Bavaria 2020 – preserve by narration and support.” Part of the concept are regulatory safeguards of ensembles, buildings, structures and ground monuments such as consultation and financial help for monument owners. Only the financial resources are still

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lacking. But there is great savings potential for construction inspection and georeferenced structure analysis.

More acceptance: Drone efficiency in the building industry

The service character of monument conservation and monument protection needs to be strengthened. It's not a static task", underlines Spaenle. "Taking into account latest scientific discoveries and soliciting acceptance of citizens." In order to promote public acceptance of such technologies requires the sharing of information on the scientific basis and benefits of these technologies.



Our customers indeed experience that struggle for acceptance in daily work. Sometimes lack of technical and physical knowledge lead to absurd stereotyping. From a professional point of view between hobby drones, toy drones and professionally valuable drones lay worlds apart. So our drone service providers and applicators inspectors, surveyors, engineers and aerial photographers would prefer calling it flying tool, measuring instrument, flying sensor platform, multifunctional, multispectral, civil drone. Used only for a specific purpose, professionally, within the framework of orders obtained, since results are convincing. Aerial HD imaging for visual inspections, orthophotographic and topographic surveying simply is much easier done by drone and for some professionals these new technological devices have become standard solutions.

For instance: The AscTec Falcon 8 is a drone indeed. But more precisely that self-developed, made in Germany drone is a patented V-form octocopter with a magnitude of over 100,000 flying hours for specific professional purpose – including on- and offshore missions. Yet since its launching in 2009 it has become more and more efficient, usable and safe.

Weimar was the first

The autopilot is nothing less than the brain of the flight system and actively supports the pilot doing a job. There are semi-automatic and fully automated functions available and helpful in many applications. To this it makes the drone safer and flight behaviour highly predictable. A research project has proven the efficiency and capability of the AscTec Falcon 8 as high-performance measuring instrument for structure assessment (e.g. bridge inspection according to DIN1072). Due to that numerous building inspections and surveys will be carried out in 2015. The engineering office Guido Morgenthal – Technologien im Bauwesen was part of the research project and already is in demand to survey all over Germany. „The joint research program on drone based structural analysis was very successful. Especially hardly accessible spots that you have in monument, cathedral, tower and historical castle complex inspections are preordained for drone-based surveys. Moreover enormous efficiency enhancement in structural analysis, inspections and diagnostics can be established by drone usage.” Says Norman Hallermann, project leader from the Bauhaus-University Weimar.

“In the past you had to put up a scaffolding and special lifting platforms or call on rope access technician teams (RAT). Now you are able to produce HD imagery and accurate geodata with the help of extremely wind-stable and flexible high-tech flight systems like the AscTec Falcon 8 and its integrated high-class cameras.”

Visual structure analysis & precise aerial measuring for exact 3D reconstructions of buildings and monuments

Aerial imaging enables detailed condition assessment and visual inspections for exact 3D reconstructions and accurate 3D modelling. Aerial imaging for measurement provides essential information to assess and compare structures conditions. Indoor inspections can be helpful, too. Precisely controllable UAV technology makes it possible to reach remote spots as well as survey complicated structures even in GPS-denied or windy environment.

“For that aerial image and geodata collection you merely need a fraction of conventional effort. We inspected two 100 meter high towers in few hours. Visual inspection data provided all necessary information for remediation measures. Without any further technical support or expenses!

Thus the UAV saves times and money, which could be used for reconstruction and renovation.”

Says Hallermann. Together with Guido Morgenthal Technologien im Bauwesen he now provides that service. The firm was founded by Guido Morgenthal, who is a Professor of Structural Engineering at Bauhaus University in Weimar. They already have inspection projects in Bavaria – and all over Germany, too.

Data acquisition with civil drones

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Besides monument protection, preservation and conservation drones are already used for inspections of wind parks, bridges, retaining walls utilities and so on. In fact you could inspect nearly any construction or object. Data acquisition for monument protection according to conventional methods won't be possible to fund. And civil high-tech drones provide a cost-effective alternative. Spaenle and Pfeil agree in that point: "Monument conservation and monument protection should rise to that challenge. Primarily the importance of historical monuments for the cultural state Bavaria is worth to achieve those ambitious goals."

Tags: [UAV for Monument & Heritage Protection](#), [UAV for Oil & Gas Inspection](#) Category: [Ascending Technologies](#), [AscTec Falcon 8](#), [AscTec Professional Line](#), [UAV for Inspection & Monitoring](#), [UAV for Surveying & Mapping](#)