



Matrice 600 drone

TAKING THE AERIAL ROUTE

Construction Today delves into the challenges faced by drone pilots in the GCC and the various types of unmanned aerial vehicles used for some of the major projects in the region.

In February this year, the Qatar Civil Aviation Authority (QCAA) warned drone operators not to use unmanned aerial vehicles (UAVs) without prior authorisation. This follows QCAA's ruling in May last year, which banned the unauthorised use of "automated or remotely piloted air vehicles" in the country. Elsewhere, according to new laws which came into effect from August 2016, the Federal Aviation Administration in the US has made it easier for pilots operating drones to obtain a licence. However, certain restrictions still apply, which includes setting the limit (weight) of UAVs to less than 25 kg.

With so many projects in the pipeline, how important is it to get things right with regard to the use of drones at construction sites? According to Ahmed Fawzy, General Manager, Pro Hobbies – the only distributors of drones in Qatar – QCAA is working hard to implement new laws which will make it possible to fly drones in the country in a safe manner. The rules will come through soon, but until then life will be tough.

Fawzy also says that he can fly drones in Dubai since he has a licence for it, obtained from Qatar's Ministry of Economy and Trade, and that he just has to give the concerned authorities a week's notice. "In Qatar there is no licencing or registration process, so there are no number plates attached to the drones. As of now, drones come under the category of toys and it's difficult to get approval to fly them commercially in Qatar. For flying drones as a hobby, you can get a permit from the Qatar R/C Sport Center. You will need to attend a training course if you fail the test."

"We are the only authorised importers and distributors of drones in Qatar," says Fawzy, who supplies DJI drones to his clients. "But for the last one year it has become very difficult to import drones to Qatar. However, the predicament regarding UAVs is not limited to Qatar, it exists throughout the world."

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General Manager
Pro Hobbies

which can take a long time. We lost out on a project for the Qatar National Sports Day as we did not even apply for it since it would require at least two weeks for the application to come through. We did not have that much time. One has to get an approval separately for each project. The application which needs to be filled up requires details like location, flying time, etc."

However, Fawzy respects the safety and security issues regarding UAVs, which have led to the strict regulations in the country. "Drones can be counterproductive if used incorrectly. The rules should take into account the competence of the drone pilot. You have to have rules in place to punish the guilty just like you would for somebody driving a car."

Fawzy points out that with advanced technology, drones can be built these days without too many complications. "There is no need to import anything from outside. You only need to get hold of a motor and a body and build your own drone and fix your own camera on it. There are already a lot of drones inside Qatar."

He also says that DJI now has a new system which has a 'dangerous area' setting and that the drone won't start once it enters the forbidden areas, e.g., airports and VIP areas. He adds: "If you fly your drone in some other

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vicinity and it accidentally nears the danger area, it will never enter it, even if you remove the GPS. And these drones are already available in the market. It has been more than two years since this feature has been included in UAVs around the world. Without it, one can't obtain a licence to operate or sell drones."

Fawzy further says that in the UAE there is now a new mobile application which shows the country's fly zone and that all the required information can be accessed by using its GPS, which indicates the no-fly zones and also provides all the rules for a particular place, e.g., the maximum distance that a drone is allowed to cover. Information is also available about the kinds of drones that are allowed.

"The new technology these days also prevents the drones from crashing," says Fawzy. "In another interesting development, the Dubai government recently released a video which showed how drones could be used to carry passengers from one place to another. So in the future we might be using drones instead of cars to go to office."

As far as the types of drones supplied by Pro Hobbies are concerned, Fawzy says: "We have supplied drones for the Lusail and Jehez projects. We have also supplied drones to Ashghal. We supplied Phantom 3 drones for the Lusail project. The S900 and S1000 are some of our biggest drones and they have the capability to carry a Canon 5D camera. All cameras including Red, Canon, Panasonic and Sony are used for the DJI drones."

Fawzy adds that Pro Hobbies finished its work related to the Lusail and Jahez projects more than a year ago when the new rules had not been implemented, and that he had operated the drones himself on those occasions. However, drones are only being used for falcon training right now because of the new laws. What is making things worse is that drone technology is also getting more and more advanced so one has to be constantly ready for new updates, and the fact that he is unable to import anything with a camera is not helping matters.

Based in Dubai, Falcon Eye Drones (FEDS)



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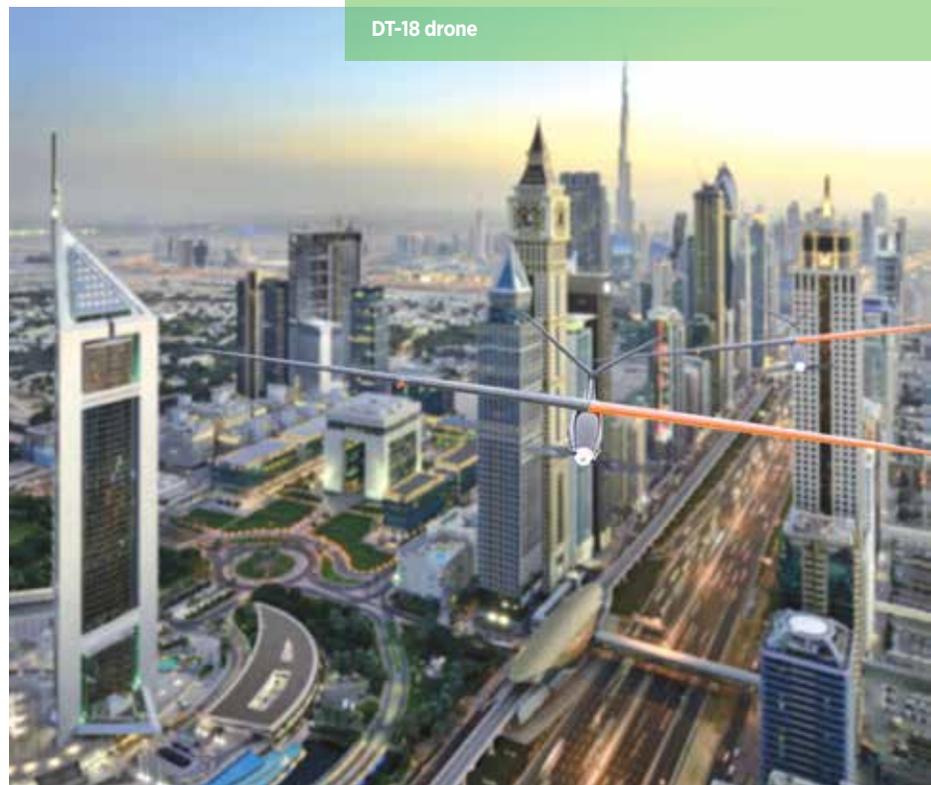
Rabih Bou Rached
CEO
Falcon Eye Drones

is a partner of the Delair-Tech group, a drone company headquartered in Toulouse, France. FEDS is responsible for providing drones and service solutions for various projects in the Middle East.

FEDS CEO Rabih Bou Rached also holds the view that the major challenges faced by drone operators in the GCC are related to the regulations, and that in some of the states UAVs are completely banned while in others getting the approval to fly drones is a "long and complicated process".

According to him: "Having mostly dry weather is an advantage in the region though the heat of summer can prove punishing on some systems. However, FEDS's industrial drones can operate all-year round. There is more that can be done in this region, but the high government fee is slowing down the progress of drones at construction sites."

FEDS was hired by Dubai Creative Clusters Authority (DCCA) to do a digital 3D model of Studio City, which Bou Rached says was a straightforward job as the area was flat and there were no high-rises in the surroundings. He added that good weather that day helped



DT-18 drone

in attaining better textured data.

“We used the Aibotix X6 hexacopter, which has autopilot software, for data acquisition. Bentley’s Context Capture, a photogrammetric software, was used for processing the data,” says Bou Rached. “The area covered was about 14 hectares, pre-flight planning was done in the office in advance, and on the assigned day it took a couple of hours to fly and complete the data collection. Post-processing took three days. Our achievement was delivering a 1 cm GSD (ground sampling distance) 3D model.”

FEDS has claimed to be the “first business in the MEA to provide aerial imagery, aerial inspection and aerial survey services with the latest commercial drones’ data automation and imaging software”. It also provides its clients with orthomosaics, digital surface models (DSM) and digital elevation models (DEM).

“Our ortho maps made it possible for one of our clients to identify key features which would have been impossible to achieve from the ground,” says Bou Rached. “The project was to map a historical underground water supply which stretched over three kilometres in the desert. The map we produced made it possible to identify the flaw; the area had been dry for years. Also, the identification of all the wells that were dug all those years ago was only made possible by DSM. With this knowledge our client can rebuild this historical structure while maintaining the original design.”

FEDS has also been involved in carrying out surveys during the pre-construction phase for Dubai’s Road and Transport Authority and the Abu Dhabi Urban Planning Council.

Louay Dahmash, Head of Autodesk, Middle East, feels that drones are moving to the forefront of construction projects in Qatar and the rest of the region, which are turning to UAVs for assistance across a full spectrum of tasks, both in planning as well as on-site. Autodesk is a leading software maker which supplies its products for a wide range of activities including construction. Its Forge platform is used by drone-making company



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Head of Autodesk
Middle East

3DR, with whom Autodesk has a tie-up, to develop a new UAV-to-cloud solution for field professionals within the construction, telecom, survey, mapping, energy and infrastructure industries.

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Autodesk came up with its ‘reality capture’ software a few years back, which according to Dahmash gives teams a new perspective to view every detail of a site in its current state and from a remote location. “Professionals can plan workflows and develop safety and site logistics procedures that identify high-traffic areas, crane clearances, and areas where materials will be moved in and out.”

Dahmash also says that the applications for drones will be included in several areas by regional construction professionals including troubleshooting of their designs as they go along; smoothing out errors and imperfections and planning ahead; and building structures without any need for human supervision. This level of automation will bring increased accuracy, apart from material and energy efficiency.

“In the Middle East, especially in Qatar, commercial drones have already been deployed as surveying tools by real estate firms and have proven useful in asset evaluation operations,” says Dahmash, who also acknowledges the fact that adding the implementation of drones to construction is still a relatively new concept.

“With the right computing tools, builders can turn sensor data into 3D structural models, topographical maps, and volumetric measurements – which are useful for monitoring stockpiles of costly resources like sand and gravel. Collectively, that intelligence allows construction companies to deploy resources around a job site more efficiently, minimise potential hazards, trim costs, and limit delays.” □