UAV Surveying Exercise in Akashi Kosen for the Future Construction Industry

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UAV Surveying Exercise

Photogrammetry is one of main subjects in Applied Surveying. The 3D-point cloud data by using SfM analysis from multiple photographs is a key to learn in this subject for i-Construction. Students in Civil Engineering are learning the photogrammetry surveying techniques with UAV and the operating techniques of UAV. The UAV operating exercise are carried out in the gymnasium because our college is located in "Densely Inhabited District (DID)."
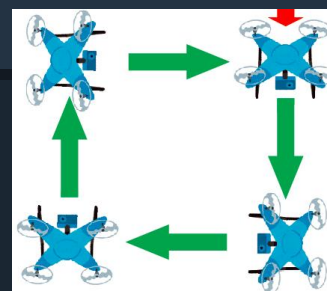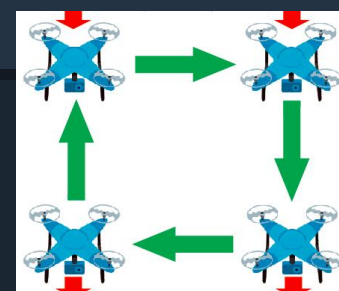

DJI Phantom RTK

Two DJI Phantom RTKs are used in this exercise. All students are able to operate UAV by themselves.
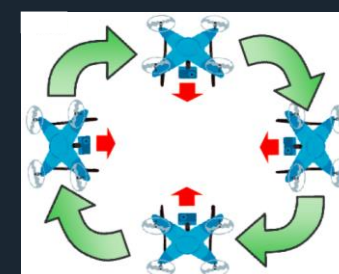
Fundamental exercises of UAV operations are for beginners. For Exercise 1, the operation of UAV to trace the square course as UAV front nose was the same as a course was exercised. This is the first step to operate UAV, it can be done by only two simple actions. For Exercise 2, the operation of UAV to trace same square course as UAV front nose was always kept to the original direction was exercised. This is the second step to operate UAV, it also

Exercise 1

Exercise 2

can be done by only two actions. For Exercise 3, the operation of UAV to trace the circle course was exercised. It is a little difficult for beginner to operate UAV because of the complex actions. UAV trace along the circle course with the front nose facing the center of the circle. It is called as "nose in circle." After learning UAV operation, students study photogrammetry in Applied Surveying. The authors are planning to teach surveying techniques along the public surveying manual by UAV in our college.

Exercise 3

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Another UAV Training

DJI Mavic Mini

Another UAV training is an inspection of structures. DJI Mavic mini, which is a small UAV among commercial devices, is used for this training. The targets on pillars and crossbeams or those in the pipes are inspected by UAV camera. Two small LED lights are installed on UAV to illuminate the targets.