

Enhance Construction safety with Drone

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Introduction

Drones are widely used in the construction industry, for mapping, inspecting the sites and surveying with AI technology. Yau Lee Construction Co., Ltd, as one of the leading construction companies in Hong Kong, also apply drones for mapping their site.

You can get up to-date images as often as you like. They allow builders the chance to monitor any issues with the construction by providing an unrivalled wide-view of a site at a fraction of the cost.

Recognizing the stagnation of worker safety over the past decade—as well as the rapid rise of drone effectivity, we opted to combine the two conditions and create DJI 2.0!

HOW TO
Fly a Drone?

HOW TO
Detect motion?



HOW TO
Use the data?

HOW TO
DIY Drone?

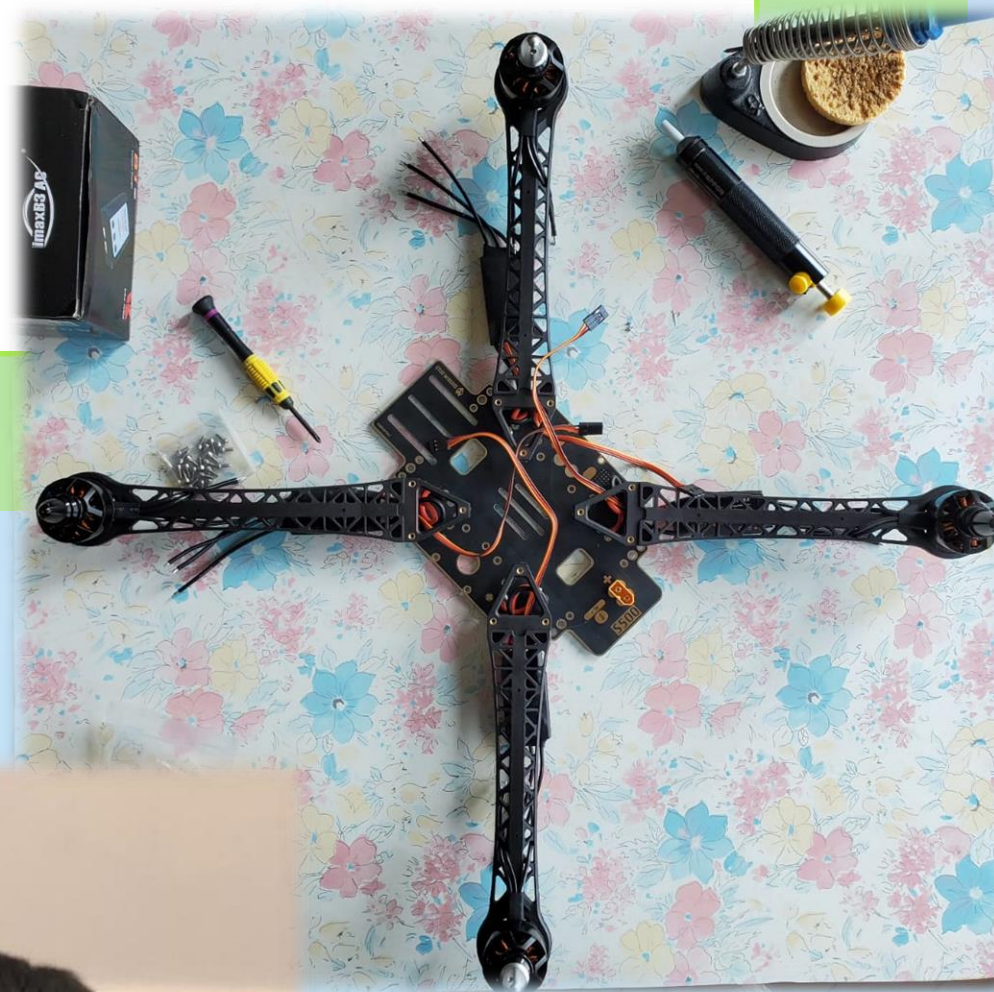
Design of the Drone

1. Camera + Raspberry PI → analyze videos and photos taken with AI
2. Thermal Sensor

Motion and thermal detection

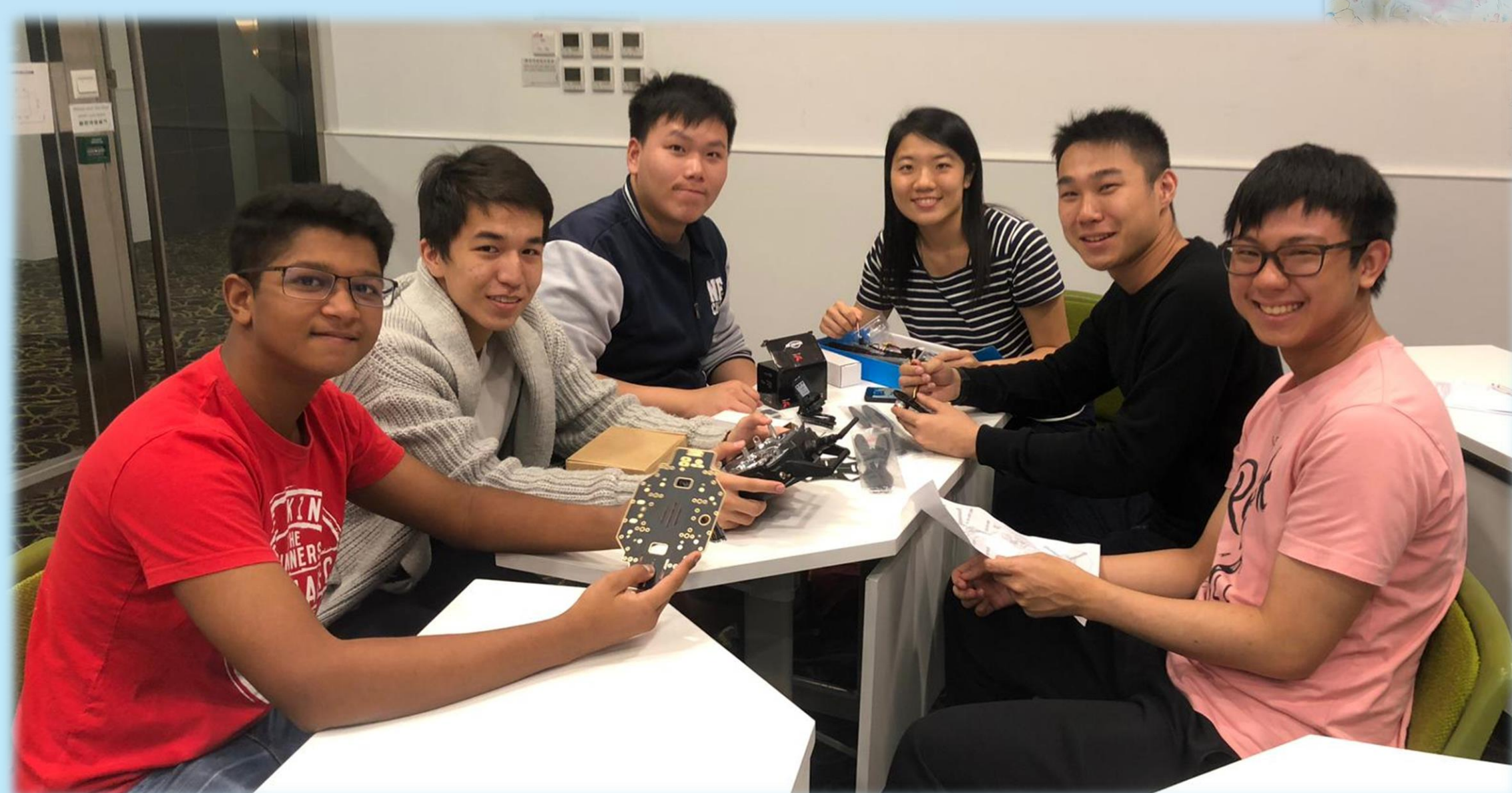
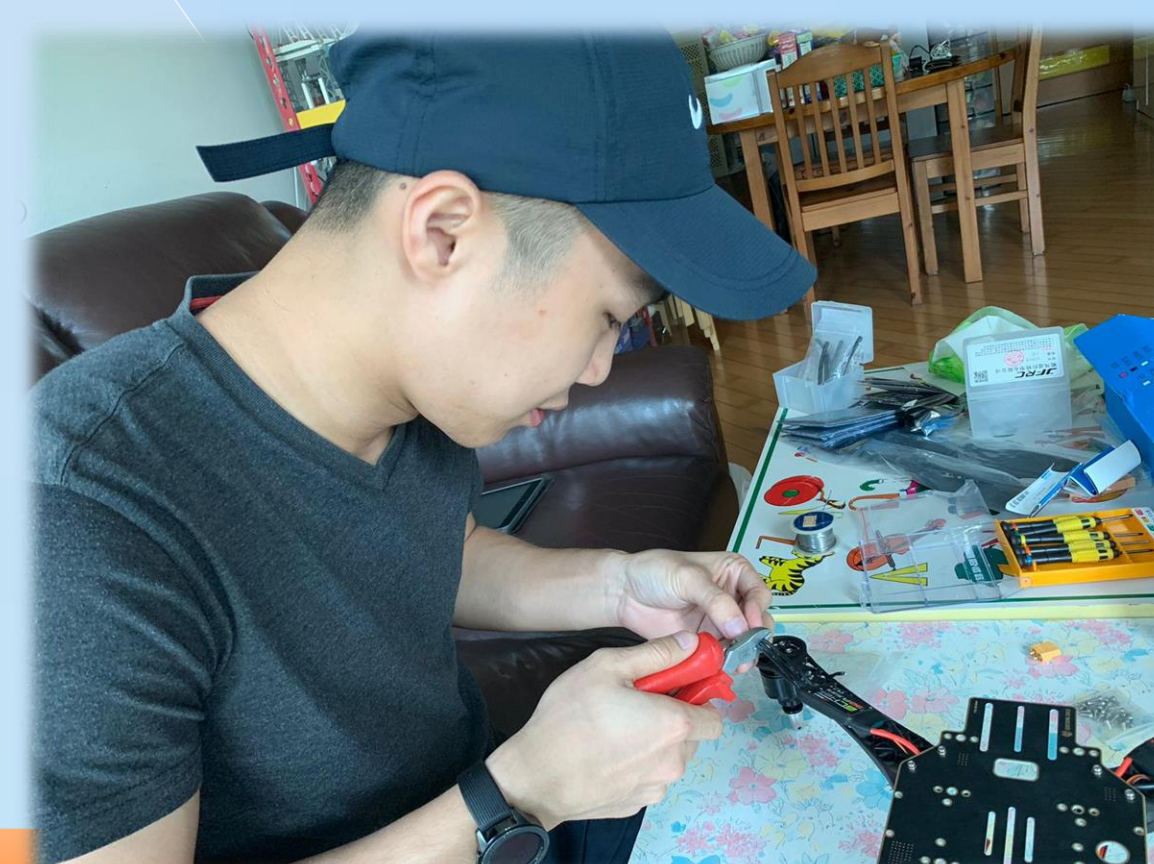
DIY DRONE

- ✓ Quadcopters (4 rotors)
- ✓ 4G communication technology is adopted
- ✓ Easy control and maneuver
 - control both the drone, sensors and camera using mobile phone or computer easily
- ✓ Obtain greater levels of statistical data
- ✓ Greater carry capacity



WITH EXISTING DRONE

- ✓ Fit with any existing drone using 3D printing technology
- ✓ Cost saving



Our team: Fawaz, Sean, Jacky, Kitty, Bryant, Ivan

Reflections

Building DJI2.0 is very challenging. We have learnt more about the mechanism of drone and the usage in construction sites. Our motto is '*Never give up!*'. The diversity within our team cooperated so naturally. When we faced difficulties, we defined and analyze the problem. Problem is solved by sharing our innovative ideas. Lastly, *thank you* for everyone's support!

Challenges and Limitation

- ◆ Short Battery Life/ Limited flying time
Most of the energy in battery is spent on fighting gravity and stabilizing in the air.
- ◆ Small payload capabilities

Conclusion

DJI2.0 can be used during day or night time for detecting motion in construction site. It provides immediate and actionable information. To extend the drone flight time and charging speed, *wireless charging technology* is what we want to achieve as the next step.

