Hexacopters in flight

PRACTICAL APPLICATION: Eight finalist teams from local tertiary institutions built, did system integration and tested their flying machines in the UAV Siswa Challenge 2013-14

AFTER one year of preparation, building, doing system integration and testing, eight finalist teams recently flew their self-built hexacopters in the UAV Siswa Challenge 2013-14 held in Universiti Putra Malaysia (UPM).

In the final leg of the challenge, the hexacopters built by the Malaysian students had to fly autonomously following planned trajectories, dropping "sand balloon bombs" at pre-planned target and unknown targets, and landing in the dedicated areas.

The eight finalist teams were El Nino Alpha 4 and Wired Up from International Islamic University Malaysia (IIUM), Hex-ell from Universiti Teknologi Malaysia (UTM), Icarus and Langit Biru UPM from UPM, Namtor from Universiti Teknologi Mara (UiTM), UMP Phoenix from Universiti Malaysia Pahang and USM AeroCopter P1 from Universiti Sains Malaysia.

Dassault Aviation representative and Rafale programme director for Malaysia, Daniel Fremont, said: "We are very pleased with the aptitude and attitude shown by the eight teams of students in mastering advance aerospace technologies. They have used their aerospace and technical knowledge, and proactively sought solutions to the various technical challenges they faced, to successfully build and fly in full autonomy their unique hexacopters. They can be proud of their achievement."

UAV, which stands for Unmanned Aerial Vehicle, is an aerial system embedding dedicated software, equipment and systems, allowing autonomous flying without a pilot on board. It is an example of high technology, low-risk equipment being used in a growing number of applications, ranging from civil to military, as in reconnaissance and surveillance over wide areas.

Malaysian Industry-Government Group for High Technology (MIGHT) president and chief executive officer Dr Mohd Yusoff Sulaiman said: "The challenge provided an excellent platform for Malaysian students to explore and nurture their technical skills to build a UAV, and also learn from experts in the aerospace commercial sectors."

"We are happy to be part of this new experience of learning and designing, while competing with other teams. Besides the technical skills gained, we also learnt soft skills like presentations, team-building and time management," said Hex-ell from UTM.

"This challenge provided a practical output for all the theory that we have learnt in the classroom. The theory gave us the starting point but the applications were very different and we had to fine-tune them through trial and error to fit the actual conditions. The crashes taught us the most in terms of what we did wrong and later on, what was correct," said Team Icarus from UPM.

"We are all majoring in mechanical engineering but this challenge requires a lot of electronic knowledge. We learnt to use various electronic devices such sensor, barometer, gyrometer and software to fly our UAV well. This challenge has widened our knowledge and experience in UAV, which is still a new subject in Malaysia," said Team Namtor from UiTM.

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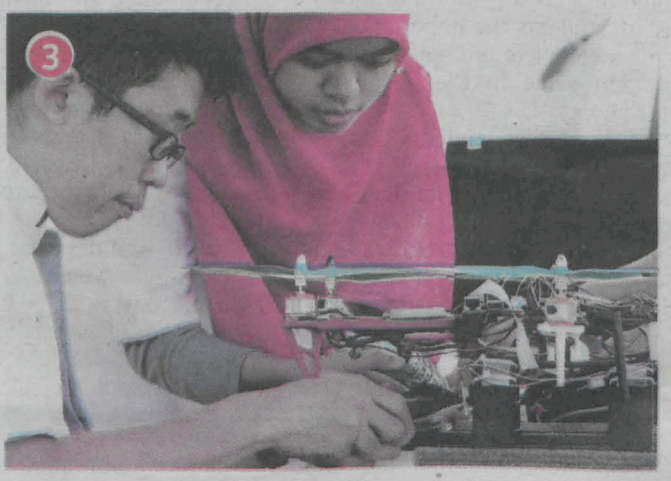
>
> *Team Icarus from UPM*

The challenge, which was opened to all tertiary institutions in the country, registered overwhelming interest from 162 students, forming 42 teams from 13 universities. Of these, 35 teams submitted written proposals of their UAV projects.

Based on the project papers submitted, 19 teams were pre-selected to present to a panel comprising representatives from Dassault Aviation, Composite Technology Research Malaysia Sdn Bhd (CTRM), MIGHT and Unmanned Systems Technology Sdn Bhd, who then selected 10 finalist teams. Of these, eight teams completed the challenge to fly the hexacopters they built, in the two days of the final competition. The prize that awaits the winner is a one-week study tour to France, to see first-hand the latest aerospace and aeronautics technologies.



For any aspiring aerospace or aeronautic engineer, this opportunity to learn from among the best in the industry will enrich their future career.

The challenge was initiated to support "human capital development of future engineering workforce in Malaysia in the field of aeronautic and aerospace".

It was organised by leading aerospace companies Dassault Aviation and CTRM, in partnership with the Education Ministry and MIGHT.

Dassault Aviation is one of the companies in the consortium that produced the Rafale fighter jet.

***1. Steady landing** by Team Langit Biru UPM. **2.** Daniel Fremont viewing the hexacopter of **Team Icarus. 3.** Alex Koo and Fatin Amalina of Team USM Aerocopter P1 doing **last-minute** touches. **4. Team Hex-ell** from UTM readying their hexacopter.*