



Search is on as robot aircraft battle to find 'Outback Joe'

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KINGARROY, in Queensland, will become a focal point for a new generation of aerospace engineers next month, when it plays host to a major competition designed to highlight civilian uses of unmanned aerial vehicles.

The nation's first UAV Challenge hopes to convince Australians to push beyond the perception that pilotless vehicles are simply unmanned killing machines and recognise the range of civilian missions in which they can be put to use.

Organised by the Australian Research Centre for Aerospace Automation, it is believed to be one of the richest UAV competitions in the world, offering a total prize pool of \$60,000, including a \$40,000 first prize.

ARCAA is a joint venture between CSIRO and Queensland University of Technology to promote civilian research into developing UAVs.

It is particularly focused on ways technology developed for military use can be adapted.

ARCAA's airborne avionics research group head, Associate Professor Rod Walker, believes it is a form of robotics that many will be interested in.

"So in that perspective it's breaking new frontiers," he said.

Professor Walker said the existence of big industries in remote parts of Australia and the vast distances that needed crossing, had made aviation an important part of life.

"So if we can provide aviation services at the fraction of the cost they currently are or more automated aviation services, then we think it's got the potential to have a big impact," he said.

To generate public goodwill,

the challenge will highlight search and rescue uses for which UAVs are well suited.

Being run at two levels, the competition is backed by Boeing Australia, the Queensland Government, two international organisations and the local council.

One competition is open to all Queensland secondary schools and a broader and more advanced contest is open to university, model makers and others willing to face harder objectives.

"There are actually a lot of very motivated radio-control modelling-type people who also have credible engineering skills and are already doing a lot of stuff," Professor Walker said.

"I was really quite amazed at what's been happening at the local model aircraft field in the past five years. There are a lot of people out there playing with this sort of stuff."

Organisers have set a challenge to simulate a search for a person lost in the bush.

Contestants must build a robotic aircraft system that can be launched from Kingarroy's aerodrome, fly about two nautical miles to a search area and find a dummy called Outback Joe.

They must give the judges the co-ordinates of the dummy's location while the aircraft is operating and deploy a "sustenance package".

This must be completed in an hour before landing within 100m of Outback Joe. "It's a legitimate problem in Australia," Professor Walker said.

"People go missing out there all the time and we spend a lot of money looking for them.

"We want to demonstrate how we might be able to do that cheaper using small robotic aircraft and perhaps faster if we had

more of them working in some sort of networked manner."

In the schools section, the students must build a remotely piloted aircraft, while a separate operator is to control a payload-delivery mechanism.

The teams can win \$10,000 for their school by flying over two hurdles and dropping a small ball into a designated area using sensors such as a small camera.

At the close of registrations, 42 teams from six countries were ready to compete in the main competition and about 20 high-school teams had registered.

One team has entered an airship but the others have stuck with fixed-wing aircraft.

But these numbers have been whittled down as contestants realised the work involved.

"We've had a whole range of hurdles that they've had to get through along the way," Professor Walker said.

"They've had to develop a safety case for us and next week they have to deliver videos that prove to us the system is operational and it's working."

The Queensland Government, which has a strong interest in fostering the aviation industry in the state, is keeping an eye on UAV development.

State Development Minister John Mickel sees a variety of civilian applications.

"They can be used in traffic and road control, power-line maintenance, fisheries and wildlife surveillance, monitoring reef health, stock monitoring, crop management as well as aerial photography and fighting bushfires," he says.

The competition runs from September 24-27.