



The WHIZZ KID

The sky is literally the limit for the ingenious flying CyberQuad, brainchild of Curtin University graduate Joshua Portlock.

text norman burns « images courtesy Joshua Portlock

It's a matter of life and death... Criminals take hostages after a botched bank job. Holed up in an industrial yard, they demand passage to freedom while keeping police at bay with volleys of gunfire. Pinned down, police desperately need to know more about what is happening before making their move.

Enter the CyberQuad (pictured above), a tiny aerial robot that can silently sneak in close and relay valuable intelligence via real-time video links to the police command post.

It seems like something out of a Tom Clancy novel but not only is the CyberQuad real, it is the brainchild of a Curtin University of Technology graduate and made right here in Perth.

Joshua Portlock, 25, came up with the concept while completing his Mechatronics Engineering degree. He began to look at the concept of a quad-rotor-powered "hovering platform" that could carry a camera for commercial tasks such as aerial inspections or law enforcement and military surveillance.

"There are big limitations with using helicopters or aircraft as aerial camera platforms; you can't fly below 400ft and if you do using a helicopter there are safety issues. Then there is the cost involved (choppers can cost up to \$1000 an hour)," says Joshua, who wanted to design something a lot simpler, sturdier and more affordable than existing miniature radio-controlled craft.

His concept, dubbed CyberQuad, got the attention of Bibra Lake company Cyber Technology, which was already producing much bigger, fixed wing UAVs (unmanned aerial vehicles) and attracting interest and orders from around the world.

CyberQuad, which costs around \$20,000 for the basic model, flies on four counter-rotating enclosed fans, enabling it to safely operate near people and urban environments. It can stay airborne for up to 40 minutes, fly at 70kmh and transmit video images from a kilometre away.

The machine's operator can even don a special

pair of glasses and see exactly what the CyberQuad's camera can see – very *Matrix*-like indeed.

The quadrotor concept has been around, says Joshua, since 1904 but what makes CyberQuad special is its active stability control technology.

A normal helicopter has a special stabiliser that helps keep the machine in level flight.

CyberQuad's fan speeds are individually controlled and inertial sensors mean it is almost impossible to "flip" the craft.

Cyber Technology operational support manager Eric Pearson says although police and security services are a natural fit with the technology, the level of interest from commercial operators has been staggering.

"We've had orders from Estonia, North Africa and the US – the country that invented the UAV – but companies in forestry, real estate and utilities are also interested. An Italian company wants one to document real estate of castles and a company in Mexico wants one to cover a sporting event."

In Perth, a CyberQuad hovered over a recent Black Eyed Peas concert for a video feed of the audience directed onto screens onstage. And, in a world first, a CyberQuad was used to check out the damaged West Atlas oil rig in the Timor Sea, ensuring it was safe for inspectors to go aboard.

Eric says the technology incorporates systems, such as cameras and sensors, from six other local companies, making it a truly innovative WA product. As for Joshua (right), not only did he have the thrill of seeing his concept come to life, he is now busy helping realise its commercial possibilities as Cyber Tech's CyberQuad project manager. cybertechuav.com.au.



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