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Pentagon's new weapon - cyborg flies that are spies

Julian Borger in Washington
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[The Guardian](#)

The Pentagon is trying to develop "insect cyborgs" able to sniff out explosives, or "bug" conversations by lurking unseen in enemy hideouts with micro-transmitters strapped to their bodies.

The cyborgs - half insect, half robot - would be created by inserting tiny devices into the bodies of flying, hopping or crawling insects while in their larva or pupa stage, so that the mechanisms become part of their bodies and ultimately allow them to be moved by remote control.

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Their most immediate task could be spotting and identifying the location of roadside bombs in Iraq. George Bush announced on Monday that the administration was spending more than \$3bn (£1.7bn) this year to combat the threat of "improvised explosive devices". Some of that money, the president said, would be used to bring together the country's best minds to think up new ideas.

The "insect cyborg" is clearly one of those ideas. Last week the Pentagon's Defence Advanced Research Projects Agency (Darpa) called for bids on the project. "Darpa seeks innovative proposals to develop technology to create insect-cyborgs, possibly enabled by intimately integrating microsystems within insects, during their early stages of metamorphoses," its advertisement says.

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"Through each metamorphic stage, the insect body goes through a renewal process that can heal wounds and reposition internal organs around foreign objects," a Darpa information sheet for inventors points out.

Such techniques will provide a much better link between the microsystem and the insect than simply sticking a microchip to the abdomen of a bee, wasp or cockroach, Darpa believes.

In earlier experiments bees and wasps were trained to identify the smell of explosives by having the smell associated with sugar water. But the trained insects had other agendas, or as Darpa put it: "The instinctive behaviours for feeding and mating (and also for responding to temperature changes) prevented them from performing reliably."

Implanting microsystems within the insect would theoretically allow it to be controlled remotely. A successful bidder would have to deliver "an insect within five metres of a specific target located at a hundred metres away" and then "the insect must remain stationary either indefinitely or until otherwise instructed".

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