

AI's Emmy award goes to Swarmanoid robot book heist

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Image credit: swarmanoid.org

(PhysOrg.com) -- Robots removing a book off a shelf? Hardly what you would consider worthy of a video award. Not unless you're talking about a special platoon of robots known as a swarmanoid. Their book heist actually won the "Oscars" of the Association for the Advancement of Artificial Intelligence (AAAI) Video Competition 2011 last week. Spy-thriller music, a Hitchcock-like hum of mosquitoes, and a menacing whir-sound of blades did nothing to deter excitement, but the technical construct and techniques of these little snap-in, snap-out robots are interesting even without special effects.

A swarmanoid is a [robot](#) “swarm” made up of three characters: the *eye-bots* (they fly and stick to ceilings with magnets, loiter and send info to other robots) and *hand-bots* (they climb and manipulate objects) and *foot-bots* (wheeled robots capable of connecting to the other types as well as amongst themselves, moving in a horizontal roll). The three are like a fire brigade or any search and rescue mission team in that they have discrete tasking abilities but they can also connect when needed.

The foot-bots are 17 cm diameter x 29 cm, 1.8 kg; the hand-bots are 38 x 44 x 30 cm; and the flying eye-bots are 50 cm in diameter, with an endurance of 10 to 20 minutes.

The award-winning video shows how a swarmanoid teams up to identify a book, walks over to the shelf where the book is located, and then climbs the wall to get it, with each of the three characters doing its respective task.

The eye-bot identifies the target book and the foot-bots are summoned. They roll over to the target area, and release the hand-bot, which climbs to the ceiling and gets the book.

The “swarm” in “swarmanoid” helps explain the fundamental concept. Swarm robotics was inspired by social aspects of insect behavior.

The film, and the robots, are the result of a research undertaking called the Swarmanoid Project, funded by the European Commission, with a stated objective of design, implementation and control of a novel distributed robotic system.

Dr. Marco Dorigo is the developer of the project and its coordinator. He was awarded in November 2007 with the "CajAstur International Prize for Soft Computing."

According to the [New Scientist](#), Dorigo and his colleagues have gathered an army of 30 foot-bots, 10 eye-bots and eight hand-bots.

According to the [Swarmanoid](#) site, the Swarmanoid project started in 2006 and ended in September 30 2010. Nonetheless, the Swarmanoid team looks ahead toward future incarnations from the present groundwork. The film narration refers to future possibilities where swarmanoids could play a role in (1) replacing humans in dangerous situations (2) performing search-and-rescue missions and (3) interplanetary explorations.

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