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## Robot sumos do battle for title

Gordon Farrer  
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It was hardly a clash of the Titans, more like a battle between a bunch of battered, rabid kitchen appliances. But the Robot Sumo competition held today at the Mount Waverley offices of engineering R&D company Invetech was a thriller.

Swinburne University student Jacob Gillies was there with Dozer Mk III to defend his 2008 title. Seven teams — from Melbourne University, Monash and another from Swinburne — stood between him and a repeat of last year's glory.

At three kilograms and measuring no more than 20x20 centimetres, these are the heavyweights of a sport that has a growing international following.

It's huge in Japan, as you'd expect, and five classes of competition are included at the RoboGames in San Francisco each year.

Classes range from the three-kilogram Mega Sumo division down to the 25-gram Nano class in which competitors are barely bigger than a 20-cent coin.

Several local universities include Robot Sumo as part of their undergraduate engineering programs. The robots from Melbourne University at today's event were part of the students' final-year design project in their Mechatronics course.

Greg Hellard, an electronics engineer with Invetech and the organiser of the event, says the competition is conducted to enthuse and generate interest in the field of robotics and mechatronics.

"Our company has an interest in such technology, however the competition is really driven as a mentoring and encouragement program," says Hellard.

"Each entry involves mechanical, electronic and software design skills. From an engineering point of view it's interesting to see how students solve particular issues, such as sensors and motor drives, torque versus speed, for example. Some entries are particularly well executed whilst some are quite experimental."

The machines are totally autonomous, they are not directed by remote control. Some look like meccano models on steroids, others like toasters with anger management issues. They go by names such as Bad Boy, Smiley, Technofail, Whirbot and Mjolnir (Thor's hammer in Norse mythology).

All were impressive feats of micro engineering.

After the handler places his machine in the arena and switches it on, it's up to the robot. Range sensors — infrared or ultrasound — detect the opponent and the perimeter of the dohyo, the 1.5-metre-white circle in which they do battle.

The aim, as in real sumo, is to push your opponent out of the circle.

Battle can range from fast and furious smash-'em-up-derby-style affairs to sluggish, if not exactly elegant ballets conducted in near slow motion.

Deadlocks are common. Each bout involves ducking and weaving, waiting, pushing and head-butting until a victor emerges.

Each round has a three-minute limit, but most bouts last less than 30 seconds.

Gillies was modestly confident that his Dozer Mk III, a remodelled version of the robot he had entered in the past two years, would get through unscathed.

But he'd seen some of the other robots in action in warm-up and a couple looked good. Very good.

"I've seen a few that have stepped up since last year," he says, with the slightest quaver of doubt, "but I'm still quietly confident".

As he should have been. After a first-bout loss due to a programming glitch — quickly fixed in the pits — Dozer Mk III went on the sweep the day, not losing another bout.

*This story was found at: <http://www.theage.com.au/national/robot-sumos-do-battle-for-title-20090731-e4bh.html>*