

## Canberra Boy Makes Good

You'll need to be interested in the earthmoving applications of GPS to share our pleasure at the recognition of Nunzio Gambale's LocataLite technology by the United States Air Force

**W**e've written from time to time about Canberra-based Nunzio Gambale and his LocataLite technology, which is a radically innovative positioning system—an Aussie achievement.

Positioning. That's putting the blade of your dozer, grader, or excavator bucket right on the money, in relation to an on-board computer design of the job you're doing. Laser was part of the original scenario, and more recently GNSS (the new word for GPS) is all the buzz.

Nunzio's system addresses various awkward questions about GNSS operations—what happens when there aren't enough satellites in view? Or the satellite signals are shaded by trees or buildings? Or the job is in a canyon between city buildings, or indoors where the GNSS signals simply won't penetrate? Practical questions that our industry faces every day, and will continue to face, as this technology becomes more commonplace.

Locata Corp's answer is to erect fixed radio transmitters around a workplace that 'pretend' to be satellites. They can be close by, for a CBD application. Or miles apart, and cover a whole city. It's not a new plan—others have experimented with 'pseudolites'. But Nunzio's team, with the input of the University of New South Wales, came up with some very original and sophisticated mathematics that makes the concept practical.

They don't ignore the GNSS satellites. "Why waste good positioning data?" said Nunzio some time ago. The LocataLites, as they're called, supplement GNSS. Of course, if necessary they're quite capable of taking the place of satellites, which is the case when work has to be done indoors.

And the results obtained with this system are brilliantly accurate. It's a case of genuine 24-carat lateral thinking. For a long time, 'MovingDirt' has believed that Nunzio has cut the Gordian Knot. We said as much, three years ago, in an article about the future of this positioning technology.

### Partnership with Leica, now USAF

As we reported a few months ago, Nunzio reached an agreement with Leica Geosystems to collaborate on efforts to apply the Locata technology to earthmoving operations.

We expect to report soon about a trial being conducted in an open cut mine environment.

The Leica deal is important for our industry, because it involves a commitment to develop a receiver capable of reading both GNSS and LocataLite signals. That opens the door for the use of Nunzio's technology by our industry.

'MovingDirt' thinks that this is very significant, because Nunzio Gambale told us a couple of years ago that he had much higher priorities than the earthmoving industry. You can imagine that a system that can deposit and recover objects with an accuracy of a centimetre in a vast warehouse, indoors, is in big demand. Nunzio explained that he had wealthy clients like the Mint wanting to accurately track gold bars inside their lead-lined strong room. And things like that—he'd get around to us in due course. Nothing patronising—he genuinely did have higher priorities until Leica sought him out.

Of very great significance for LocataCorp, this home-grown Australian venture, is a recent announcement from the United States Air Force that a cooperative research

and development agreement has been signed between Locata and the principal research centre of the USAF, the Air Force Institute of Technology (AFIT) for "the development and testing of positioning algorithms for LocataLite systems".

You'll have seen video of those missiles going down chimneys in Iraq, and clearly the USAF is no slouch when it comes to positioning. So the fact that they've linked up with our cobbler in Canberra really says something.

In its press release the USAF, who developed and operated the mighty GPS system, acknowledged the twenty or more patents granted to Locata. They said that they are keen to develop and test navigation algorithms using the LocataNet to perform centimetre-level positioning *in the absence of GPS*. They expect this to be useful 'in a variety of operational applications'.

Go for it, Nunzio!



## Want to know more about GPS?

'MovingDirt' has been following this emerging technology since it first arrived on the earthmoving scene, seven years ago.

More than fifty of our articles can be seen and downloaded at [www.kerville.com/gps](http://www.kerville.com/gps)

They'll show you that Australia is up with the rest of the world, and in many cases, ahead.