GeoVector Corporation   **America's Cup AR Showcase**

Showcase Success Points the Way

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The America's Cup in the modern era is an international showcase of technology and innovation. The blending of ideas, excellence in design and engineering along with exceptional people performance drives competition at the highest level. These essential qualities also lie at the heart of modern business innovation.

The presence of a large, tech-savvy business audience at the America's Cup defence on their doorstep, combined with the existence of suitable wireless networking services gave GeoVector an opportunity to trial its unique pointing technology in conjunction with their partners – HP, Microsoft and Vodafone NZ – and prove the value residing in GeoVector's portfolio of patents and intellectual property. For GeoVector's research lab based in Auckland, the demands of providing live data simultaneously with race action on the water provided an irresistible challenge.

Actual Spectator was the application developed to combine pointing, mobile technology and the enhanced race coverage provided by Virtual Spectator and Animation Research Ltd into a complete package. As the name suggests it enables spectators to interact with their actual environment to receive an augmented view of the action.

Users on the Actual Spectator equipped Vodafone, HP or SAP spectator boats could flip between the overhead view of the course and boat positions and the side view showing attitude and conditions, then drill down to get data on boat headings, race timings and even details on the day's crew. Information displayed was keyed to the data from the pointing card. Using the application viewers could locate the race boats relative to themselves and the direction they were facing. A quick sweep of the iPAQ would locate objects of interest around the course, giving precise feedback on where to look and what was being looked at.

The front end was designed in conjunction with Lucky Digital, whose experience in working with Flash interfaces and data visualisation enabled a concise and easy-to-read display on the HP iPAQ 5450, and contributed to a compact and responsive installed client.

The back end was built in GeoVector's Christchurch development lab using Microsoft .Net technology and servers to combine the data feeds and pointing information. The resulting engine can be re-skinned and has been used to drive further Actual Spectator applications for sporting and other events.

During the event GPS and heading information was collected from each boat and sent to the America's Cup Media Centre over the CDMA network. From there data streams were fed from both Animation Research Limited and Virtual Spectator to the GeoVector Race Data .Net Server, and then transmitted over Vodafone's IPWireless network to a GeoVector Spectator .Net Server residing on each spectator boat.

GPS information from the spectator boat was taken to fix the position of the pointing devices onboard, with the GeoVector Spectator Server communicating over WiFi to each HP iPAQ 5450 equipped with a GeoVector Pointing Card. A digital compass in each card provided the directional information, and Actual Spectator running locally on the iPAQ combined the data from all sources to build the real time display.

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Out on the water the results were impressive. Without GeoVector Actual Spectator finding a clear view of the race boats in the crowded spectator fleet could be difficult. The application gave an augmented view that could locate course markings and the boats themselves accurately, even small objects such as marker buoys could be located to within 1m and the performance level of the wireless networking meant data was live and concurrent, not delayed as with some of the satellite TV coverage.

For technology partner HP things couldn't have gone better. According to Paull Wilson, HP New Zealand's Mobile Solutions Manager:

The strategy was to deliver an unparalleled experience to key customers and partners. We wanted to get our guests as close to the action as possible, while demonstrating the latest wireless technology to enhance their viewing experience. By showcasing what can be done in the wireless world, it stretches the boundaries of the imagination, opening up endless possibilities of how wireless solutions can be implemented in any commercial situation.î

A key part of the experience was putting the technology in the customer's hands, out in the field and largely without supervision. In matching new products with proven technology innovators such as Virtual Spectator And Animation Reasearch Ltd, it meant the customer could see that the product is real and give them an understanding of what it could mean for them.

"In partnership with Geovector, we're demonstrating the latest wireless solutions – a showcase of not only what the future holds, but what we can do now. We're showing customers how wireless solutions can be implemented in a variety of ways, to stimulate their thinking as to how these solutions could improve their businesses," says Paull Wilson.

With picture capable mobile phones already in the first wave of devices designed to enhance and exploit natural human behaviours such as looking and pointing, the distance between what the future holds, and what is in the hands of the customer today, is becoming smaller and smaller. The success of Actual Spectator is another step bringing that future closer.

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