ARRAY PRECISE POINT POSITIONING SYSTEM

Summary of technology
Array-Precise Point Positioning (A-PPP) is a novel GPS/GNSS receiver system which, when compared to conventional technology, offers more accurate positioning and a faster convergence time.

A-PPP uses an array of antennas and a novel algorithm to calculate position. Positional accuracy can be improved by increasing the number of antennas and the distance between them.

Compared with conventional RTK methodology, the technique offers around twice the spatial resolution in all three spatial dimensions, paving the way to reliable centimetre-level accuracy without requiring reference stations.

This innovation can have immediate practical impact in industries such as precision agriculture, precise machine control, vehicle guidance, defence, robotics and GIS/mapping applications. The technology is particularly applicable to RTK CORS networks by reducing downtime and inaccuracy experienced during convergence time.

Opportunities also exist to use this technology for more accurate attitude determination and atmospheric sensing. Further development of its intrinsic ability to resolve multipath issues could see it provide highly accurate positioning in difficult environments, for example among tall buildings or in rough terrain.

Advantages
The advantages of A-PPP include:

- greater positional accuracy
- faster convergence time than existing systems
- highly accurate attitude sensing.

Researchers
Professor Peter Teunissen, who leads the research team, is recognised internationally as the inventor of LAMBDA, a highly accurate method of precise GPS positioning.

Other members of the team include GNSS researchers Dr Peter Buist and Dr Gabriele Giorgio, who have more than ten years of industry and academic experience each.

---

Stage of development
We have demonstrated scientific proof of concept and are currently field testing across a number of application areas.

Intellectual property
We have filed national phase patents in several jurisdictions worldwide, and have written proprietary software to implement this unique algorithm.

Opportunity
Curtin is seeking contact with commercial developers of positioning and navigation systems, with the intention of co-developing and licensing the A-PPP technology.

Further information
IP Commercialisation  
Tom Hammond  
Business Development Manager  
Curtin University  
Tel: +61 8 9266 2548  
Email: tom.hammond@curtin.edu.au