



Position Partners

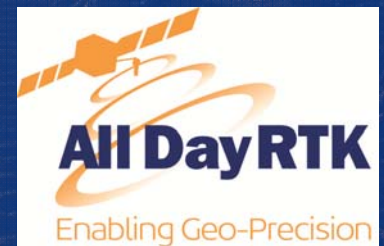
IGNSS Sydney February 2018



“ Position Partners
Is Australia's largest
company focused
entirely on high
accuracy positioning
services

- Martin Nix CEO

”



About Position Partners

- A team you can rely on with diverse expertise: surveyors, engineers, factory-trained technicians
- Support wherever and whenever you need it with branches throughout Australasia & South East Asia
- Partnered with world-leading technology innovators

Core services

Geospatial, positioning and *connected* solutions



MACHINE SYSTEMS

- Compatible with all makes and models of earthmoving & mining equipment
- Automated haul count
- On-Board weighing (scales)
- Automated paving systems



SITE MANAGEMENT (IoT)

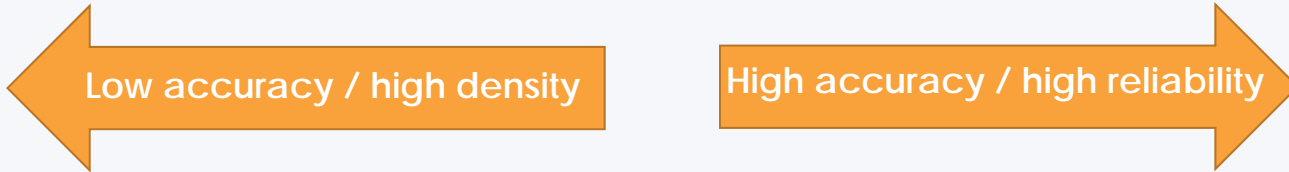
- Tokara remote support & tracking
AIIDayRTK CORS network
- Site connectivity hubs
- DynaRoad mass haul & planning
- iVove Intelligent Systems
- Site monitoring



GEOSPATIAL TECHNOLOGY

- Optical & GNSS positioning
- 3D laser scanning
- Unpiloted Aerial Systems
- 3D Mobile Mapping
- Field & Office software
- Deformation monitoring

"GNSS of Things"



Monitoring



Network RTK
Remote support



Situational awareness
Collision avoidance



SBAS for Construction

Project Title

Fit for purpose, high-accuracy, spaced based augmentation services applied to precision guidance, remotely piloted and safety systems for construction and utilities industries in Australia and New Zealand

Partners

UNSW



Objective

The objective of this project is to test, validate and demonstrate the positioning performance of DFMC SBAS, PPP over L1 & PPP over L5 signals in real-world applications within the construction and utilities industries; specifically for precision guidance, tracking, remotely piloted aircraft and safety systems.

Outcome

The demonstrated benefits, through the identification of fit for purpose applications verified by real-world testing, will assist to inform industry and the future Australian government Space Utilisation Policy, including the potential to sustain and enhance Australia's critical infrastructure.

SBAS for Construction

Anticipated Benefits

Economic contribution – vital to economic growth in Australia and New Zealand

- GDP from construction activity in Australia reached \$32,130 million AUD in the first quarter of 2017. 4th largest contributor
- However, construction sector needs highly productive - how can productivity, efficiency, and safety systems be enhanced by using SBAS?

Safety Issues – construction sites are also highly hazardous working environments for the personnel.

- construction industry accounts for 9 per cent of the Australian workforce
- Yet accounted for 11 per cent of all serious workers' compensation claims
- In 2013, the Australia had a fatality rate of 1.85 per 100,000 full-time employed workers in construction

SBAS Tracking

- SBAS for tracking workers, plant, equipment and assets in real-time on a congested site
- Potentially have a significant impact on safety and productivity by reducing downtime caused by accidents or inefficient use of plant/equipment

Application – Safety Awareness

Low accuracy / low power

High accuracy / high reliability



BLUE electronics

BLUE ELECTRONICS

Operators Control Panel (OCP)

Personal Proximity Detection System

Applications:

- Vehicle to Person Protection
- Person to Vehicle Protection
- Vehicle to Vehicle Protection
- Vehicle/Person to Object Protection
- Person Tracking
- Adjustable Alarm Zones
- Points Of Interest (POI)
- Event Logging

SBAS - Personal Proximity Detection System



ivolve
Real-time Machine Intelligence

Target icon

RTK - Situational awareness / collision avoidance

RPAS for Monitoring / Inspections



August 2017
NSW Fire and Rescue
worked to remove the
30-metred crane, which
smashed into a
penthouse apartment of
a 10-storey building,
crushing a balcony and
leaving three workers in
need of rescue and 200
people unable to entre
their homes

Open sky – suitable for GNSS/RTK

Enclosed site – suitable for SBAS?

Smart Rail – TasRail / Institute of Rail Technology

SMART Rail

(Satellite Management Assisting Rail Transport)

Potential improvements for rail transport and train systems using SBAS

Project Partners:

TasRail and Institute of Rail Technology Monash Uni

Objectives

- Demonstrate potential improvements of SBAS in “Virtual tunnels” caused by steep embankments that obstruct standard GPS signals
- SBAS may reduce “ghosting” and “false alarms” generated from standard GPS positioning
- Investigate advantages of SBAS in train control and management systems to improve efficiency
- Potential productivity for benefits in track health systems that provide predictive track maintenance and more targeted maintenance scheduling
- Improved safety for various aspects of rail operations / maintenance such as rail / road vehicle interactions at level crossings and loan maintenance workers



Vegetated terrain and safety considerations

