

SUCCESS STORY



Tire Testing

Bike Roll and Lean Acceleration Analysis

Zen Microsystems, a renowned Indian distributor for testing equipment, delivered a full tire analysis using the Ellipse2-A Attitude and Heading Reference System (AHRS) from SBG Systems. They tested the good adherence of the tires as well as the cornering capabilities.



CLIENT
ZEN MICROSYSTEMS

APPLICATION
Tire road adherence analysis

PRODUCT
Ellipse-N miniature Inertial Navigation System with GNSS receiver

PROJECT
Bike speed, lateral acceleration, and lean angle (roll).

Tire quality and performance are crucial components of safe bike behavior and comfort. Two-wheeler manufacturers look closely at the tire performance when selecting their providers. An Indian tire manufacturer company contacted Zen Microsystems to test the good adherence of their tires as well as the cornering capabilities in comparison with the market leader tires. Zen Microsystems is a renowned Indian distributor for testing equipment. The company delivered a full tire analysis using the Ellipse2-A Attitude and Heading Reference System (AHRS) from SBG Systems.

The test took place on a drive circuit. Zen Microsystems team installed the Ellipse2-A connected to a CAN data logger with embedded GPS receiver. The bike was equipped with Zen customer's tires, and then with the market leader tires for comparison analysis. For both tests, the same testing equipment was used to sense speed, lateral acceleration, and the bike lean angle (bike roll). The analysis showed that at same curve (bend), with higher speed, Zen Microsystems' client tires allowed higher bike roll during bends, more lateral accelerations which means a higher adherence of tires to the road (Higher Road Grip).

« They like the compact size of the Ellipse2-N and the impressive position robustness coupled with the CAN communication protocol and the good precision even in vibrating conditions »

Ashish Samant, Director of Zen Microsystems

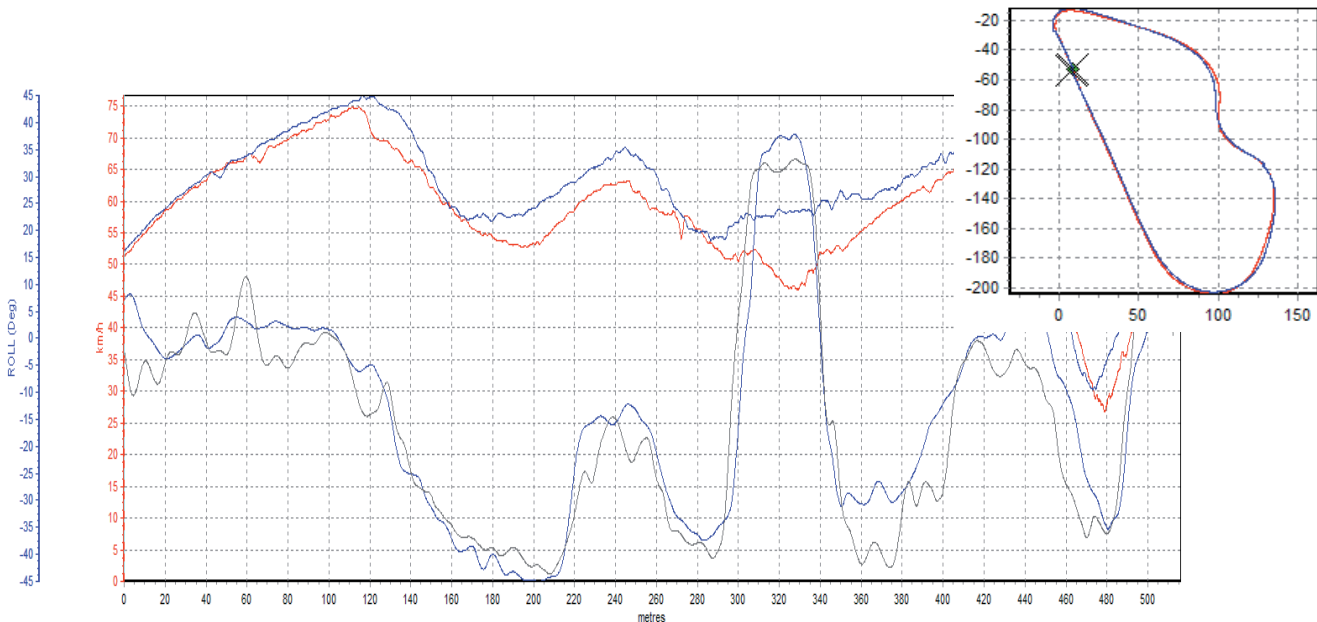
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This complete analysis was determinant for the client who could prove the high quality of their products to the two-wheeler manufacturer.

The Ellipse2-A AHRS used for the test is a highly robust miniature inertial sensor that provides roll, pitch, and magnetic heading thanks to the embedded Extended Kalman Filtering (EKF). The AHRS is extensively calibrated in temperature and dynamics for bias, misalignment, etc. As space is limited on a bike for testing equipment, Ashish Samant, Director of Zen Microsystems recommended to his client the Ellipse2-N, the all-in-one miniature INS/GNSS from SBG Systems. The Ellipse2-N is a miniature inertial navigation system which integrates a L1 GNSS receiver and fuses the position with inertial data for a smooth trajectory even during outages that could occur near trees, buildings, etc. After this successful test, Zen Microsystems client chose the Ellipse2-N. "They like the compact size of the Ellipse2-N and the impressive position robustness coupled with the CAN communication protocol and the good precision even in vibrating conditions" explains Ashish.

AUTHOR

Hélène Leplomb, SBG Systems, June 2018



Each pick represents the bike roll during a bend. Negative roll are left turns, positive roll are right turns. Speed data are shown to be compared with roll data, showing the performance obtained by the tire.

ELLIPSE2-N KEY FEATURES

- » 0.1° Roll & Pitch, up to 0.5° GNSS Heading
- » 2 m GNSS Position
- » Compact and Light-weight
- » CAN Protocol
- » Connection to Odometer



About Zen Microsystems

Zen Microsystems is an exclusive distributor for a number of international testing equipment manufacturing companies. Our cliental includes two-wheeler and three-wheeler manufacturers, passenger cars, heavy trucks manufacturers, tyre manufacturers, research centers, certifying authorities and highly reputed educational institutes. We have an excellent service support to cater to the enquiries and requirements of our clients. We also do Complete Testing Projects & also assist in Pre-Homologation Tests. More information: <http://www.zenmicrosystems.co.in>