

EXPERT OPINIONS

Q: How will safety issues raised by increasing autonomous traffic — in the air and on roads — affect the GNSS industry?



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A: Due to increasing autonomous traffic, the GNSS industry will have to adopt the concepts of collective tracking mechanisms in the shared ecosystem. Inherently, all the cars/drones (rovers) will have the sensors to track the traffic “on-the-fly” and make intelligent navigation decisions, but in case of any system malfunction, the collective tracking of devices can facilitate “social” interactions between the rovers. This will serve as an added layer of security in case an autonomous social member goes rogue!



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A: Future autonomous vehicles will demand full situational awareness and extremely reliable, accurate and secure navigation systems. GNSS will not meet the stringent demands of these autonomous vehicles. To address the inevitable situations where GNSS signals become unusable (due to attenuation or interference) or untrustworthy (due to spoofing), receivers should be coupled with sensors such as IMUs, lidar and cameras, and exploit the plenitude of ambient signals of opportunity such as cellular, digital TV and Wi-Fi.



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A: Safety issues raised by increasing autonomous automotive and airborne traffic will escalate the product development standards and performance requirements of GNSS software, hardware, and correction services used. The GNSS industry is challenged to increase accuracy on lower cost platforms by utilizing multi-frequency, multi-constellation, sensor fusion and precise point positioning. To be able to rely on GNSS in auto-guidance applications, the industry also needs to incorporate GNSS integrity functionalities into our products.

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