Special Issue Reprint

Precise Positioning with Smartphones

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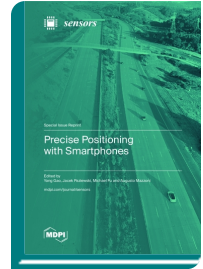Edited by
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Over the last few years, many smartphones have been equipped with Global Navigation Satellite System (GNSS) technology, allowing people to use their own devices for positioning and location services. After the release of the Android Nougat (version 7) operating system, raw GNSS measurements (i.e., pseudorange, carrier-phase, Doppler shift, and carrier-to-noise density ratio (C/N0) observations) from smartphones and tablets became accessible, which opened the door to precise positioning capabilities in consumer devices. Many studies have since been conducted, as precise location information will lead to many new smartphone applications in the near future. While the progress has been encouraging, a number of limiting factors must be overcome in order to support real-world applications, including poor antenna quality, the difficulty of carrier phase ambiguity resolution, and low availability and integrity in operational environments. The contributions from academia and industry included in this reprint discuss innovative ideas and algorithms and present experimental results for precise positioning with Android smartphones.

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