GNSS Ephemeris with Graceful Degradation and Measurement Fusion

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A new global navigation satellite system ephemeris offers more accurate and reliable satellite positioning data valid for several days, significantly improving upon the standard three-hour lifespan.

In order for global positioning system (GPS) satellites to determine positioning with accuracy, it is imperative that the position of the satellites is accurately known.

Purdue University researchers have developed a new global navigation satellite system (GNSS) ephemeris that more accurately determines the exact position of satellites. Instead of uniform accuracy over the entire time interval like current technologies, this ephemeris is initially extremely accurate and exhibits "graceful degradation" with the accuracy gradually decreasing with time. This ephemeris is valid for several days before needing updating. The standard broadcast ephemeris is only valid for three hours.

Advantages:

-More accurately determines the exact position of satellites

-Valid for several days as opposed to the standard three hours

Potential Applications:

-Computer Technology

-Telecommunications

TRL: 4

Intellectual Property:

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