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Perspective

# Introduction to Global Navigation Satellite System

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## DESCRIPTION

Satellite navigation systems has become essential part of all applications in which mobility performs a vital role. These features could be at the heart of the mobile phone Third-Generation (3G) networks including the Universal Mobile Telecommunications System (UTMS). As for the past developments, GPS launched a number of techniques, products and consequently, applications and services. The milestone of satellite navigation is the real time positioning and time synchronization. The earth station included with a dish antenna transmitter that can transmit a high frequencies micro wave signals, some earth stations also called ground station, which could transmit and receive the signals while others can only receive signals.

A high directive and a high gain antenna is important at the earth station, because of the losses over the long path is very high, the signals frequency reaching returned to the earth station from satellite is very small. Therefore at the receiving end a parabolic dish antenna with 61 m diameter provides a high gain and therefore amplifies the signal power, it is essential to have a low noise amplifier earlier than the mixer stage in the receiver. For that reason the implementation of wide-region augmentation systems must be highlighted, due to the fact they allow a significant development of accuracy and integrity performance. Wide Area Augmentation System (WAAS), European Geostationary Navigation Overlay System (EGNOS) and (Multi-functional Satellite Augmentation System) MSAS provide over United States, Europe, Japan a useful augmentation to GPS, GLONASS and Galileo services. GNSS (Global Navigation Satellite System) improvement has an interesting aspect because of its sensitive nature.

Considerable activities or developments are usually subject to a couple of differentiators: technological developments and political decisions. GPS and GLONASS (Globalnaya Navigazionnaya Sputnikovaya Sistema) in all ranges of improvements are strictly associated with those differentiators.

The approval and startup of the European Galileo application is taken into consideration even though most of the actual innovation. Technological and political decisions in Galileo substantiate that interoperability and compatibility must be reached in the coming future. Such problems are the true GNSS improvement for the advantage of institutions and organizations. GNSS applications are beneficial in all fields that perform a key role, moving its use from the transportation domain to multimodal use, outdoors and indoors. It is expected that GNSS will increase substantially the precision in position domain. The concept of reference system for navigation is crucial since all the applications of GNSS are related to the coordinate system used.

## CONCLUSION

The fundamental application of GNSS is focused on the potential of to determine the position in the Global reference system anywhere any time on the Globe in a simple, fast and cost-effective manner. The integration between GNSS and different associated technologies including telecommunications (global system for mobile communication, general packet radio services, universal mobile telecommunications system), the Geographic Information Systems (GIS) and Inertial Navigation System (INS), has created several applications that needs more time to be discussed in details. Many research efforts were exerted in order to find each new applications to promote the quality of our life by using GNSS benefits. The GNSS include three fundamental satellite technologies: GPS, Glonass and Galileo. Each of them consists specially of three segments, space segment, control segment and user segment. These segments are almost similar in the three satellite technologies, which are all together make up the GNSS. As of today, the complete satellite technology is the GPS technology and most of the existing worldwide applications associated with the GPS technology.

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