**Input paper: [[1]](#footnote-1)** ENG14-3.1.3.7

**Input paper for the following Committee(s):** **Purpose of paper:**

(Select as appropriate)

ARM  ENG  PAP  Input

ENAV VTS  Information

**Agenda item** [[2]](#footnote-2) n.n

**Technical domain/ Task number** 2 Radionavigation services

**Author(s)/Submitter(s)** Sulgee PARK, Sanghyun PARK (KRISO), Jongguk CHAE (MOF)

KPS and Maritime POINT R&D Project Status

# background

Global Positioning System (GPS) in the U.S. is a most representative system among the positioning systems that provides accurate location and timing information to every user by using multiple number of satellites. The accurate location and timing information is used in various fields such as transportation, geodetic and hydrographic survey, and disaster and safety. It is used not only in the field of land navigation, marine navigation, air transportation for the applications such as car navigation, aircraft, vessel operation, railway operation, but also geographic information system, public work, structure safety monitoring. It is an important infrastructure that helps strengthen the social safety net such as emergency structure and Search and Rescue (SAR). Additionally, as positioning and navigation by smart phones for advertising and games based on personal location becomes popular, the satellite navigation system is expected to become more prosperous and increase in their use with combining technology of next generation communications, for example Online to Offline (O2O) connected business, 5G, and Internet of Things (IoT), and also unmanned or autonomous vehicles.

Many countries, specially Russia, China and Japan which are the countries around Korea, have deployed or on deploying their own satellite navigation system over a long period of time, and will be competing in the Fourth Industrial Revolution when precise location and timing information become important. In response, Republic of Korea (R.O.K.) has decided to initiate and promote the Korean Positioning System (KPS).

# KPS development plan

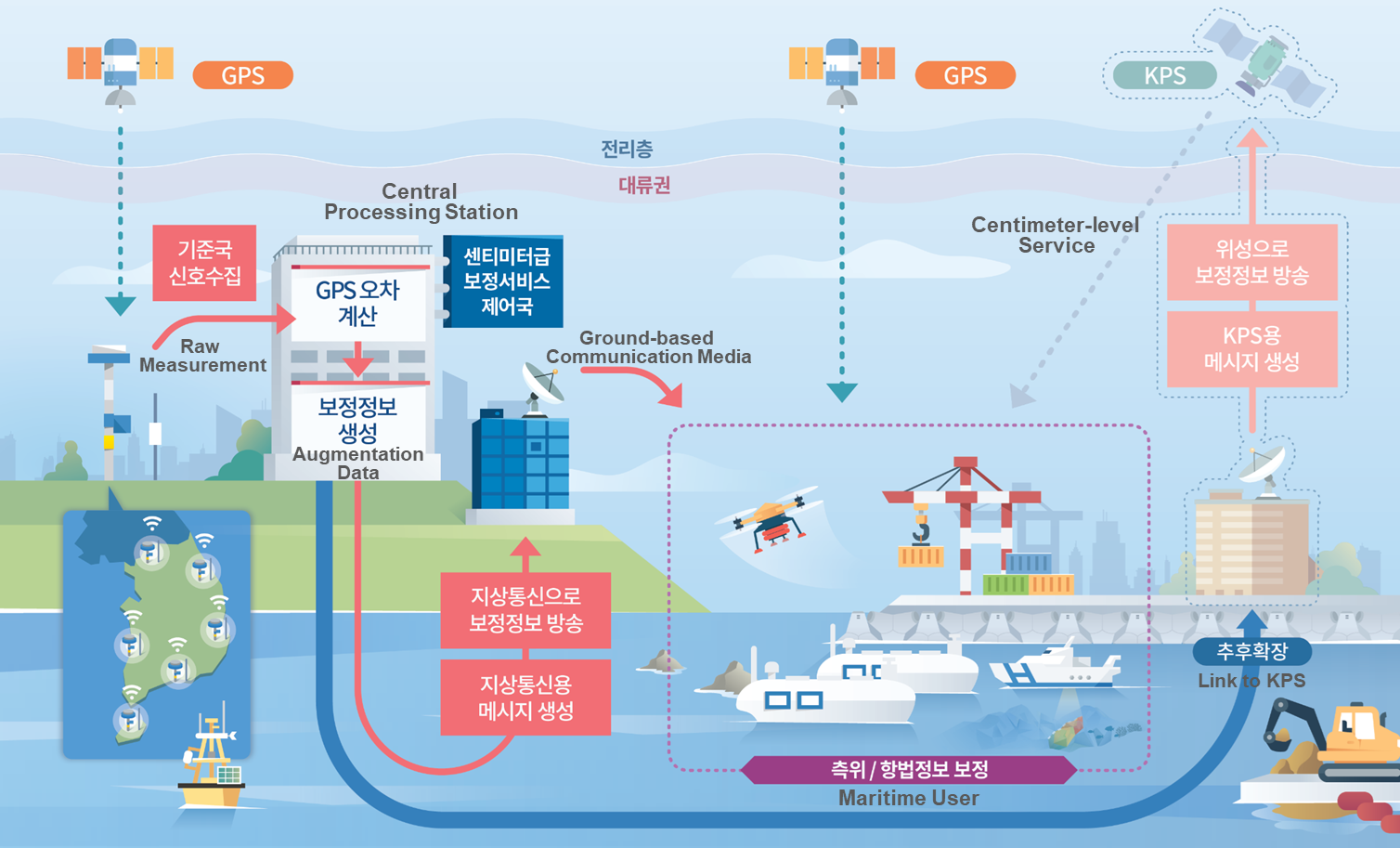
R.O.K. has recently enacted the plans to implementation a Korean Navigation Satellite System, which is named by KPS, in 3rd Space Development Promotion Fundamental Plan (Feb. 2018). Meanwhile, the ‘Task Force for Korean Navigation Satellite System’ has been established and started its operation. Implementation of a navigation satellite system requires large-scale national investment, takes a long period of time, and needs to respond to variety of variables such as securing state-of-the-art technologies and securing satellite orbit and frequency in the process. Therefore, it needs to gather and review opinions of experts from various fields, and prepare efficient and sophisticated strategies. The task force consists of sub-committees for policy, utilization, international cooperation, and technology, and they are to review the system development, strategy, resources, and development schedule.

The KPS program has a four phases of implementation plan. The first phase is for the task force to establish strategies for implementation of KPS and necessary resources, and to prepare strategies for securing technologies and international cooperation. The second phase is the technology development for the satellite payload: the design of signals for navigation satellite, the construction of ground test stations and the acquisition of core technologies. The third phase is the development of test satellite: test satellite development, the satellite launch and the development of the first ground station. Lastly, the fourth phase is the KPS program completion stage, the development and the launch of satellites and the service aims to start from 2035.

There are five KPS services, which are classified as open service, meter-level service, centimeter-level service, SAR service and SBAS service. The KPS program will finish the first phase this year and enter the second phase starting from 2022. It plans to launch its first satellite in 2027 and complete the deployment of eight satellites by 2035.

# POint R&d project and kps

R.O.K. initiated the Precise Positioning and INTegrity monitoring (POINT) project in April 2020. The POINT project aims to develop an infrastructure that provides users with precise positioning and integrity monitoring information in the maritime and to achieve an improved location’s accuracy of 5cm (95%, horizontal) within 100km of the Korean coastline. The POINT project will be carried out from 2020 to 2024. The KPS project is planning to closely link with the POINT project and use the research results of the POINT project to develop KPS’ centimeter-level service. R.O.K. would like to provide the target performance achieved through the maritime POINT project through KPS service.



1. Relationship between maritime POINT project and KPS

1. Input document number, to be assigned by the Committee Secretary [↑](#footnote-ref-1)
2. Leave open if uncertain [↑](#footnote-ref-2)