

## 66. A Study on the Design and Implementation of Heading sensor system using Carrier-phase GPS.

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These days, As a variety of transportation media, the importance of navigation installation is getting bigger and bigger. This navigation data is the most necessary part for security and operation of the transportation media on a right way and, most of all, there are many studies of investigation and develop to obtain Azimuth information which has high flexibility.

Inertia navigation installation with Gyroscope and an accelerometer has a good point of being able to use at anytime without any supports. But, as time goes by, because of the accumulated observational error, it needs to compensate it permanently and in addition, it has high price and long setting time. Even though Flux gate with Earth centered magnetism can be analyze out an absolute magnetic-north-direction, it's not that strong so that has low confidence because there's a possibility to come out another error, due to magnetic power in and around.

Meanwhile, GPS system with using an artificial satellite can receive anywhere, not depending on the weather, and is shown us very precious results on comparing with others as well. When GPS is applied independently it's not enough to get Azimuth information, due to the noisy elements within 100m-200m, but the study on using Carrier which is contained in the whole GPS signals can get the relative direction on a highly precision is known in the Land-surveying field.

This result can be used by an application for getting posture to connect over two antennas to the body. Only if Carrier phase can be able to find out the vagueness in there, it can be useful and pursued the easy way to get it.

Hereby, this study abstracted the direction information with realizing the PRTK algorithm of Geonav. which consists of Heading Sensor for obtaining the heading information and restored the phase difference into the third dimension between two receivers. So it can be abstracted the direction information with it and figured out the Heading information with Heading calculating algorithm. In addition, it shows a realized method and investigated a possibility to practice in reality through the examination.