

Bluetooth Dead Reckoning Navigation System for Cars

Galaxy Gnavi® is a high precision Dead Reckoning Navigation System (GNSS/DR) for cars, which combines ultra-low noise MEMS 3-axis gyros, 3-axis accelerometer, barometer, car speed, bluetooth module and OBDII (on-board-diagnostics) in a small compact black box. All sensors of **Gnavi®** are calibrated over their temperature and axis alignment in order to make them ideal for demanding applications. When GNSS signals are blockage or not available, such as in urban canyons, parking house, tunnels and stacked highways, almost ALL car navigation system can't work, but only **Gnavi®** can provide reliable and accurate navigation coordinates. Depends on **Gnavi®**, car drivers just enjoy driving everywhere, wouldn't worry to get lost anywhere.



Gnavi® sophisticated GNSS/DR algorithm auto calibrates and optimally blends the sensors inputs with extended kalman filter to generate optimal and accurate position outputs in the most hostile environments. **Gnavi®** has to be used with Android system mobile phones, tablets, before/aftermarket car navigation systems which have GPS and bluetooth module inside. For navigation application, **Gnavi®** is the only one that provides 6-axis sensors, 3D navigation coordinates output and its DR error less than 6m/km for 2km distance traveled. Besides, **Gnavi®** can provide OBDII data as required.

1. Gnavi® takes GPS data from Android mobile, tablet or navigation product through APP wirelessly.



Application :

- Available for all cars which have OBDII after 2000 and all Android navigation products.
- The field which wants knowing more accurate location of the vehicle in telemetric.
- Navigation function improvement in personal vehicle navigation system.
- Fleet management and freight transportation.
- Autonomous vehicles

Feature :

- 100% positioning coverage, even when loss of GNSS signals.
- System integrates ultra-low noise MEMS inertial sensors, barometer and bluetooth module.
- All sensors individually have temperature compensation and axis alignment calibration.
- Provides absolute and relative height data.
- Available to all Android systems of mobiles, tablets, before/aftermarket navigation systems.
- Auto self-calibrate attitude when system fixed and power on.
- Provides OBDII data for all cars.
- DR error < 0.6% of 2km distance traveled (< 6m/km).
- CE, FCC and RoHS certificated.

Specification

Sensors		Update rate	
Gyro (3-axis)	±100°/s	DR navigation	2 Hz
● Noise density	0.004°/s√Hz	Power	
● Non linearity	±0.5% of FS	● Prime power(OBDII)	12V DC
Accelerometer (3-axis)	±2 g/±6 g	● Power consumption	< 0.5 W
● Noise density	50 μg√Hz	Dead Reckoning position error	
● Non linearity	±0.5% of FS	● Horizontal error	< 6m/km
Barometer		● Vertical error	<0.5m for 20m height traveled
● Pressure range	-500m ~ 9,500m	Environment	
● Resolution	0.01 hPa	● Compensated temperature	- 10°C to +75°C
● Data output	24 bits	● Operating temperature	- 40°C to +85°C
Bluetooth module		● Storage temperature	- 40°C to +85°C
● BLE and RF transmission	version 4.2	Physical	
● Antenna	PCB antenna	● Dimensions	64 mm x 45.5 mm x 25 mm
● Certifications	FCC(USA), IC(Canada), CE(EU)	● Weight	< 37 grams
TELEC(Japan), NCC(Taiwan), SRRC(China), RoHS		● Enclosure material	ABS plastic

