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CREATE

CheetahNav

Tactical Navigation System

The CheetahNAV is a versatile tactical navigation system designed for light military vehicles.

CheetahNav includes a high-performance Inertial Navigation System (INS) that combines MEMS inertial sensors, high sensitivity GPS receiver and advanced Kalman filtering algorithms to provide optimal estimation of position, velocity and orientation.

An optional slave module is available for use in space constrained areas where specific information needs to be communicated to personnel i.e. the driver.

KEY FEATURES

- Route planning functionality
- Improved situational awareness
- Enhances mobility of vehicles
- Vehicle movement display
- Arabic language pack
- Moving map display
- MIL-STD-2525B symbology
- Touch screen display

OPTIONAL

- Battle management system integration
- Multifunctional HD display sharing for other vehicle systems
- Freeform messaging

System Overview

CheetahNAV utilises real-time moving map technology that provides the driver and crewmembers continuously with accurate situational awareness information. CheetahNAV has a user-friendly graphical navigation capability, combining inertial, GPS and compass information for accurately navigating between pre-set waypoints towards the final destination. The integrated Inertial Measuring Unit (IMU) ensures jamming free operation and a multi-language option ensures successful joint multinational operations.

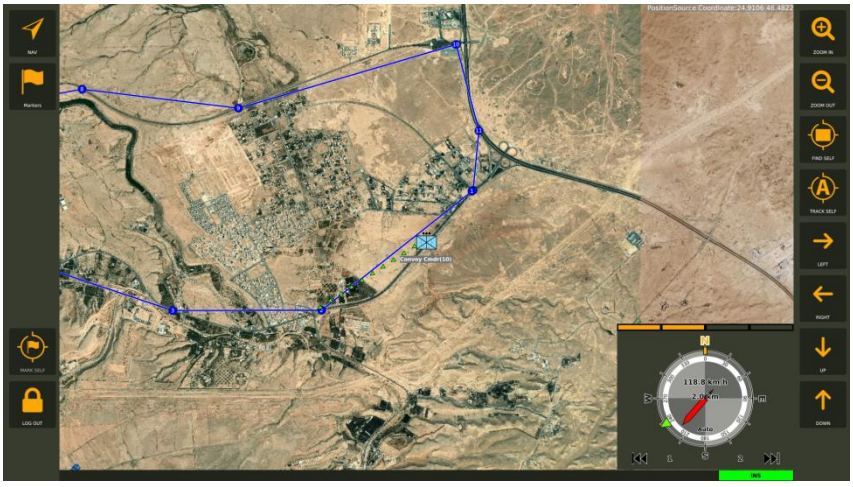
Ideal for tough battlefield conditions, the ruggedized CheetahNAV is designed and has been tested to withstand the most severe military environments. The CheetahNAV offers various options for vehicle installation, is vehicle agnostic, and can be configurable to specific user needs, allowing flexibility as dictated by different mission requirements.

CheetahNAV is non-ITAR controlled and is the system of choice for land forces worldwide, meeting all their navigation and battlefield management needs.

The crew of the vehicle is provided with the following guidance queues to execute the planned tactical manoeuvres:

- True Heading of the vehicle.
- Desired Heading towards the Next Waypoint or Destination.
- Current Vehicle Speed.
- Desired Vehicle Speed to reach the Next Waypoint or Destination at the planned time.
- Current Vehicle Position.
- Next Waypoint or Destination Position.
- Distance to the Next Waypoint or Destination.
- Pitch and Roll Attitude of the vehicle.
- Track travelled by the vehicle.

MOVING MAP DISPLAY



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The vehicle navigation system is a 'map based' navigation system that will allow maximum tactical advantage by enhancing the situational awareness of the crew at a reasonable cost. The system uses a 'strapdown' inertial measurement unit, combined with a GPS to allow dead reckoning and positional accuracies, to allow the vehicle to fulfil its role in a tactical offensive.

MASTER DISPLAY UNIT

- Display
  - 11.5" Diagonal 16:9 TFT
  - 1920x1080 Resolution
  - Sunlight Readable
  - Capacitive touch
- Interfaces
  - Ethernet (UTP)
  - 28Vdc as specified in MIL-STD-1275D
  - RS422
  - GPS Antenna interface
  - IMU/INS interface

SLAVE UNIT

- Display
  - 3.5" Diagonal TFT
  - 240x320 Resolution
  - Sunlight Readable
- Interfaces
  - Ethernet (POE UTP)

Specifications

NAVIGATION	
Heading (Static)	1.0 ° RMS
Heading (Dynamic, GNSS)	0.1 ° RMS
Pitch/Roll (Static)	0.1 ° RMS
Pitch/Roll (Dynamic)	0.2 ° RMS
Horizontal Position Accuracy	2.0 m RMS
Vertical Position Accuracy	5.0 m RMS
Velocity Accuracy	±0.05 m/s
Angular Resolution	< 0.05 °
Output Rate (IMU Data)	400 Hz
Output Rate (Navigation Data)	200 Hz

GPS/GNSS	
Receiver Type	50 Channel L1 GPS
Optional	GLONASS, BeiDou,
Solution Update Rate	20 Hz
Time-to-First-Fix (Cold/Warm Start)	< 50 s
Time-to-First-Fix (Hot Start)	< 30 s
Altitude Limit	50,000 m
Velocity Limit	500 m/s

IMU	Accelerometers	Gyroscopes	Barometer
Range	±15 g	±450 °/s	300 to 1100 mbar
In-Run Bias Stability	0.02 mg	< 1°/hr	0.02 mbar
Noise Density		<0.2°/√Hz	0.001 mBar/√Hz
Resolution	0.5 mg	0.02 °/s	0.005 mBar

Environmental	
Temperature (Operational)	-20°C to +70°C
Temperature (Storage)	-40°C to +80°C
Vibration	0,040g/Hz², 20 Hz to 2000 Hz
Shock	40g with a period of 20ms in each axis
Humidity	95%RH at 40°C
Sand and Dust	<150um
Electromagnetic Compatibility	MIL-STD-461F Class A3
Altitude Limit	Up to 1500m (50 000 feet)
Input Voltage	28VDC MIL-STD-1275D

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