

Bluesktrac

Description

Blueskytrac is a single IoT unit used for sensing its environment. The unit integrates sensors for GPS POSITION, MOVEMENT, VIBRATION, NOISE and AMBIENT TEMPERATURE with GSM, GPRS and BLUETOOTH secure communications, and a range of external sensors.

Cyber-security

Blueskytec has programmed a set of IP blocks, that together, form the Patent-pending BST Cyber security suite. This set of blocks provide key management, trusted boot, encryption/decryption services, tamper detection and random number generation. This IP provides the “Anchor of Trust” at the IoT sensor, which is critical to establish authentication and security with the cloud. The Sensor cannot be “hacked” or tampered with, thus the IoT data is secure within the device and in transmission, in effect a VPN for IoT. The data supplied to the Cloud is thus guaranteed to be free of viruses.



Applications

With its onboard sensors Blueskytrac can sense its surroundings, record these to its internal encrypted storage and/or send this encrypted information via USSD or GPRS data. USSD allows short data messages (160 bytes) of information to be sent over the SMS network where GPRS is not available. This is fully encrypted so the data supplied to the client database will be guaranteed to be virus free and authentic. With its magnetic clip or Velcro strap, the unit can be mounted on a device to monitor noise, vibration and temperature etc.

Expansion

Expansion potential allows for the sensing of Air quality (CO, CO₂, NO_x, Ozone), Pressure, Flow, Temperature, Magnetic field, Electrical energy (Power, volts & Amps). A CAN interface for automotive is also available giving direct interface to OBDII vehicle diagnostics and telematics.

Client Side Software: The system software solution consists of 4 items: Blueskytrac sensor, GSM (or satellite Q4 2017) connectivity via a service provider, Customer Server, Client Access.

Connectivity: Blueskytrac connects to the World Wide Web though the use of the GSM Air Interface. This Air Interface is standard GSM with an embedded SIM on the unit. This SIM can be supplied by us using our Emnify global partner, or can be supplied by the customer’s telecommunications partner (Vodafone, Telefonica/O2, EE etc). The SIM is locked with a PIN to the unit and cannot be removed. If it is, the SIM is locked using the standard PIN services. If the unit is probed whilst operating the unit will enter tamper alarm

and stop working, thus no information can be gained from side channel analysis of the unit. The Telecommunications provider route the USSD and GPRS data through their network to the OEM server. This data can be FULLY ENCRYPTED, so the Telecommunications provider cannot access the information.



data.

Customer Server: The Blueskytec supplied customer server, is an SQL database and Apache Server system that accepts HTTP POST JSON FORMAT data messages from Blueskytrac. It also generates messages to Blueskytrac for control. It also accepts USSD messages (when GPRS is not available), passes these and populates the database correctly. This Customer server will be located at the customer facility or chosen secure location. All data in the database can be encrypted so no part of the Server has access to unencrypted

Client Access: The client application (web browser, PC/MAC application, smart phone app etc) accesses the OEM database with requests for data. This data is returned to the client's application and displayed. Each Blueskytrac unit is configurable for a wide range of parameters – including additional sensors.

End-to-end security: For complete end-to-end security Blueskytec can supply a “Dongle” that decodes and authenticates the data from the Blueskytrac. Without this attached to the users access device the data is useless. The Dongle attaches to the users device via Bluetooth.

Blueskytrac specifications

- 70mm x 30 mm x 40mm with Magnetic or Velcro strap attachment.
- Water resistant IP65 - 2m underwater, 100% humidity, Spray and Torrential rain.
- Temperature - freezer to dashboard (-20°C to +80°C)
- Shock & Vibration - 2m drop onto concrete, tracked or non-tracked vehicle profile
- Charging – 5 to 6v dc, 500mA – 1.2 Ah LiPol battery.
- GSM/GPRS world-wide connection using USSD and Data with Embedded SIM & data plan
- 6 Axis Accelerometer for vibration, movement and compass monitoring.
- Microphone and internal temperature measurement
- Anti-tamper with 256 bit unique key per unit.
- Data memory encrypted 128 MByte Flash, 128 KByte battery backed SRAM.
- UL cyber certification FIPS140-2 (Feb 2018)