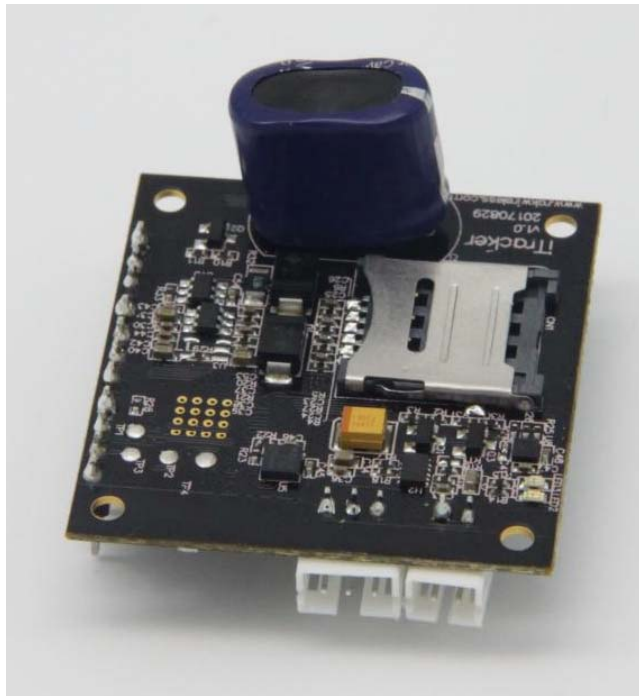# RAK8211-G iTracker all in one IoT Tracker Module with GPRS Sensor node (Quectel M35 based) with BLE, GPRS, GPS and Sensors

iTracker RAK8211-G is versatile developer board aimed at aiding in quick prototypes using GPRS. The board includes a vast array of connectivity options (GPRS, BLE 5.0 and GPS) and sensors like an accelerometer, a light sensor and a barometric sensor. At the heart of the module is the venerable Nordic NRF52832 BLE processor. The GPRS connectivity is provided by the Quectel M35 module. The iTracker module is Arduino friendly and can be programmed using the IDE.

The board also provides SWD interface for programming the NRF52832 core. The combination of BLE and NB-IoT provides flexible low power consumption development along with myriad of application option ranging from telemetry to live tracking and environment sensing.

Specifications

- Module Name: RAK8211-G

- Dimensions: 43mm x 38mm x 18 mm

- Interface: Digital I/O,Analog input

- GSM/EDGE: 850/900/1800/1900MHz

- Antenna Type: External antenna

- Operating temperature: -40°C to +85°C

- Storage temperature: -40°C to +85°C

- Power Supply: 3.5V~18V

Integrated Multiple Sensors

- Acceleration LIS3DH

- Compass LIS2MDL

- Bosch BME280 Temperature/Humidity/Barometer

- Ambient Light OPT3001

- Tilt Sensor

Applications

- Vehicle Tracking / Fleet transport management

- Safety monitoring of old / young children

- Animal protection and animal husbandry management

- Loss of assets / personal positioning

- Home Security

- Street Light Control

- Factory Automation

Solar Charger and Li-battery Charger

Support 800mA Solar charger TI bq24210. Built in solar and lipo charger circuit.bq24210 800-mA. Single-Input. Single-Cell Li-Ion Battery Solar Charger

GPS Specification

- L1 Band Receiver: Channel:22(Tracking) / 66(Acquisition)C/A Code

- Horizontal Position Accuracy: Autonomous: <2.5m

- Velocity Accuracy: Without Aid: <0.1m/s

- Acceleration Accuracy: Without Aid: <0.1m/s2

- Timing Accuracy: 1PPS Out: 10ns

- Reacquisition Time: <1s

- TTFF@-130dBm with EASyTM:

o Cold Start: <1s

o Warm Start: <5s

o Hot Start: <1s
- Sensitivity

o Acquisition: -148dBm

o Tracking: -165dBm

o Reacquisition: -160dBm
- Dynamic Performance

o Maximum Altitude: Max. 18000m

o Maximum Velocity: Max. 515m/s

o Maximum Acceleration: 4G
- Protocols

o NMEA 0183

o PMTK

GPRS Specification

- GSM/EDGE: 850/900/1800/1900MHz

- GPRS Level 12

  o MAX Downstream 85.6kbps

  o MAX Upstream 85.6kbps
- PBCCH Encoding Mode: CS 1, 2, 3, 4

- Message:

  o Send and receive point to point SMS

  o Cellular broadcast message

  o Text and PDU mode
- Audio Processing Mechanism

  o Echo cancellation

  o Echo suppression

  o Noise suppression
- Speech Coding Mode

  o HR

  o FR

  o EFR

  o AMR
- Output Power

  o Class 4 (2W @850/900MHz)

  o Class 1 (1W @1800/1900MHz)
- Power

  o 1.3mA @DRX=5

  o 1.2mA @DRX=9
- Protocol: PP/TCP/UDP/FTP/HTTP /SMTP/MUX

Nordic NRF52832 MCU Quectel L70-R GNSS

- QUECTEL BC95-G NB-IoT

- 4.9mA peak current in TX (0 dBm)

- 4.8mA peak current in RX