Jbs Project Srls

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Personal GPS manager

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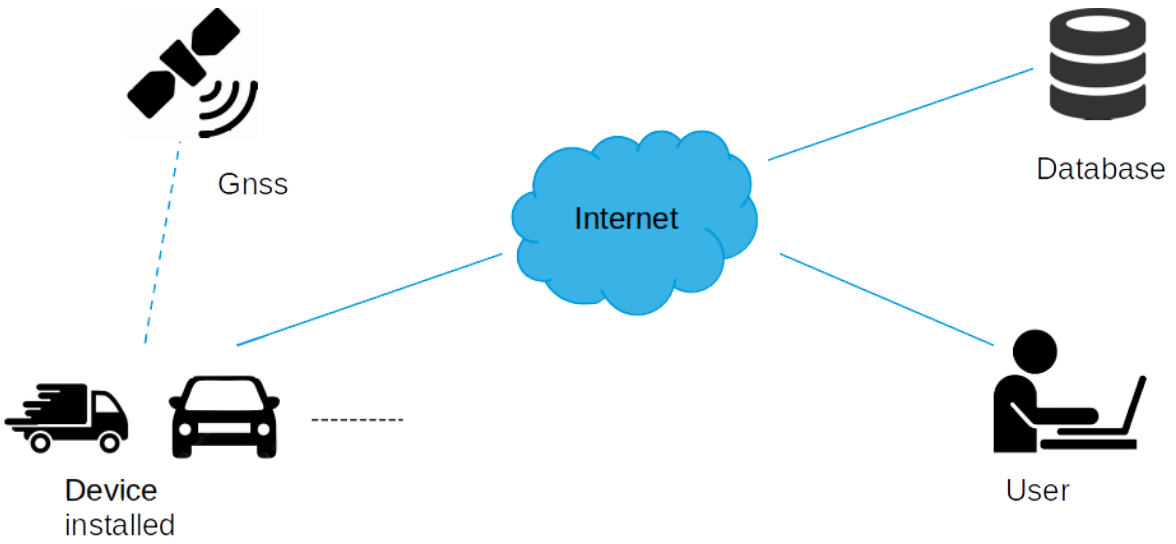
Product description

This product is designed to be a GPS tracking unit, which is a navigation device that uses satellite navigation to determine movement and determine geographic location.

The product contains a GPS module which receives the GPS signal and calculates the coordinates. Allows you to store data (data logger). It also allows through a modem to transmit this information over the network. Satellite-based GPS tracking units work anywhere in the world using satellite technology such as GPS, GLONASS, Galileo and BeiDou.

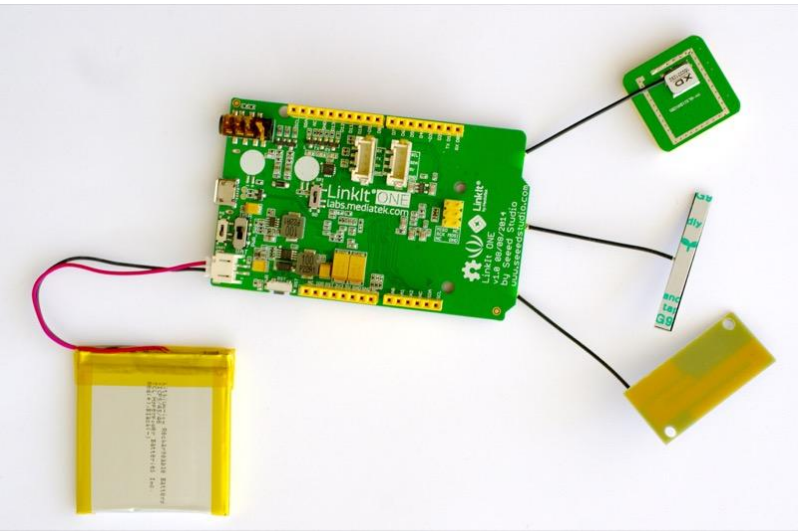


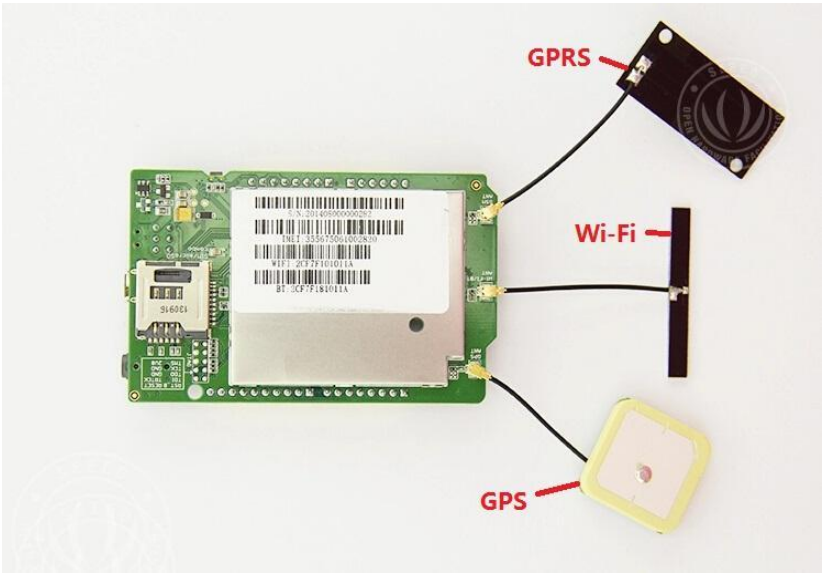
The diagram shows a typical use of the product: a user configures the device to receive information. The device is installed on various devices (cars, motorcycles, trucks, or any other place you want to monitor). The device communicates with the satellites to receive satellite information and depending on how it is configured it can send information to a specific terminal or data to a database via the GSM/LTE module.

Hardware typology

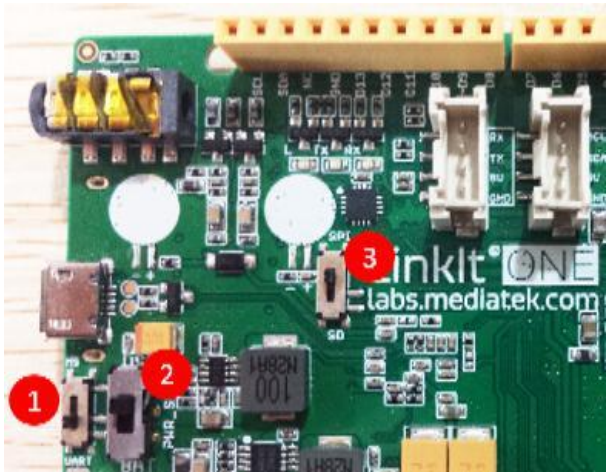
The product is built using two types of hardware;

Modello A - GP10 based on Linkit one shown in the following picture:





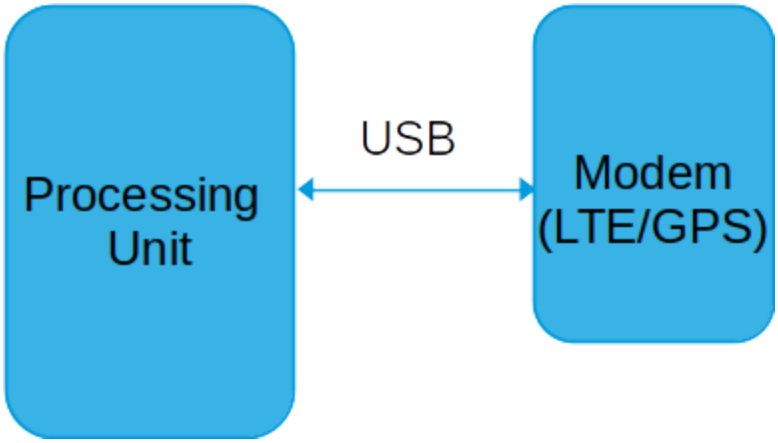
Following will be described the configuration switches:



Switch No.	Functionality	Position 1 - Functionality	Position 2 - Functionality
1	Program Mode	**MS**: In this position, when connected to a PC, LinkIt One board will be shown as a 10MB USB drive. The program will not execute in this mode. Any file that is copied to this drive can be read via the code.	**UART**: This position is used to set the board to program mode. Firmware can be uploaded in this mode.
2	Power	**BAT**: Board powered by Li-ion Battery. To charge the battery, set the switch to this position and connect the board to the PC.	**USB**: Board powered by USB port. Set the switch to this position when there is no battery connected to program the board.
3	SDI/SPI	**SPI**: This position	**SD**: This position

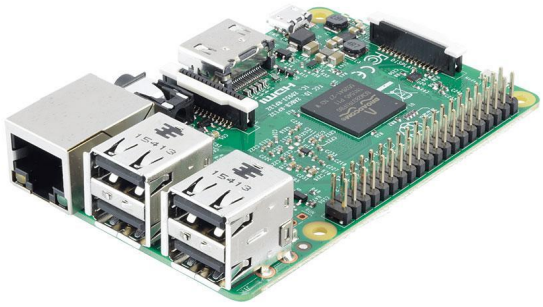
		allows access of external SPI pins (D10 - D13)	allows the code to access the SD card. This mode also disables access to SPI pins (D10-D13).

Model B (under development) - Gp20 is splitted in 2 modules: processing unit (based on raspberry hw) and a GNSS/LTE module, connected by usb channel.



The models of the Processing unit and the GNSS/LTE module are shown below. The two modules are connected via USB.

The two modules can change type depending on the availability of the products.



Start to use

Use a SIM card for a GSM network, PIN code is deactivated, no call forwarding function.

The SMS message must be in Text format, not PDU format.

Functionalities

GPS personal tracker supports various features that make it a very simple item to set up.

The configuration is very simple and can be done in 2 ways:

1. by sms (already supported)
    a. you send a text message to the number configured in the sim and GPS personal tracker receives the configuration and applies it providing an answer
2. via rest api (under development)
    a. you can send configuration commands through REST api

SMS Configuration

It is possible to activate many functions by sending text messages containing certain formats.
NB: if the GPS is not fixed send an error.

To see the list of errors see here: Errors table

3. Current position

Text to send via sms	Response	Description
GET CURR LOC	lat= long= https://googlemas...	Send via sms the current position (latitude and longitude)

4. Battery level

Text to send via sms	Response	Description
GET BATT	battery level=20%	Send the current battery level

It is possible to set a periodic communication of the battery level using this message:

Text to send via sms	Response	Description
GET BATT PERIODIC	battery level=80%	Sends the current battery level every 10 minutes
GET BATT PERIODIC OFF	OK	disables the periodic sending of the battery level

5. Distance alert

Text to send via sms	Response	Description
SET ALARM <lat=x,long=x> <distance>	ALERT DISTANCE	Sets an alarm if the distance from the point entered with the coordinates exceeds <distance>. distance is expressed in meters. The alert is sent every 10 minutes.
SET ALARM OFF	OK	remove distance alert

6. Remove alerts

Text to send via sms	Response	Description
ALERT OFF	OK	remove all alerts

Rest API configuration

Under development

Advanced features (under development)

1. Store GPS points

   writes GPS points every 30 minutes on memory card (can export them in a format to display them on a map).

2. Enable intelligent trace

   Enable intelligent tracking that provides information about the optimal use of transportation (requires payment of a subscription for the use of a backend part)

Technical details

Linkit one*

Dimensions	108mm x75mm x33mm
Weight	G.W 102.5g
Battery	Lithium Cells/Batteries packed with equipment UN3481 -PI966
Microcontroller	
Chipset	MT2502A (Aster)
Core	ARM7 EJ-S™
Clock Speed	260MHz
Dimensions	3.3 x 2.1 inches
Flash	16MB
RAM	4MB
Battery Jack	3.7~4.2V Li-battery

DC Current Per I/O Pin	0.3~3mA
Pin Count	16 (D0~D13, SDA, SCL)
Voltage	3.3v
Pin Count	3 (A0, A1, A2)
Voltage	0~5V
Pin Count	2 (D3 and D9)
Voltage	3.3v
Max Resolution	13bit
Frequency (Resolution)	1.6KHz (13bit) / 50.8KHz (8bit) / 800KHz (4bit)/ (customizable)
Pin Count	2 (D2 and D3)
Set Count	1 (SDA, SCL)
Speed	100Kbps, 400Kbps, 3.4Mbps

Set Count	1 (MOSI, MISO, SCK, SS)
Speed	104Kbps~26Mbps
Set Count	1 (TX/RX)
Voltage	3.3v
Set Count	1
GSM	850/900/1800/1900MHz
GPRS	Class 12
Bluetooth	BR/EDR/BLE (Dual Mode)
Wi-Fi (MT5931)	802.11 b/g/n
GPS (MT3332)	GPS/GLONASS/BEIDOU
Flash	10MB
SD Card	Up to 32GB (Class 10)

RAM (Code+RO+RW+ZI+Heap)	2MB

Part List

LinkIt One	1

ECCN/HTS

HSCODE	8543709990
USHSCODE	8543709301
UPC	841454106326
EUHSCODE	8543709099
COO	CHINA

CE
EU DoC
FCC

RoHS

Polymer li-ion Battery

(*) source: https://www.seeedstudio.com/

Error Code

Code	Description
2	GNSS not fixed
10	generic error

History

Date	version	Description
1/5/2023	1.0	creation

10/5/2023	1.1	functionalities description