

Electronic Logging Devices Extender for HOS User Manual



R1.2

Author	Revision	Changes	Date
Gil Winograd	1.0	Initial version	2017-04-18
Gil Winograd	1.1	Change some descriptions	2017-04-24
Gil Winograd	1.2	Change the diagram	2017-04-27

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1 Introduction

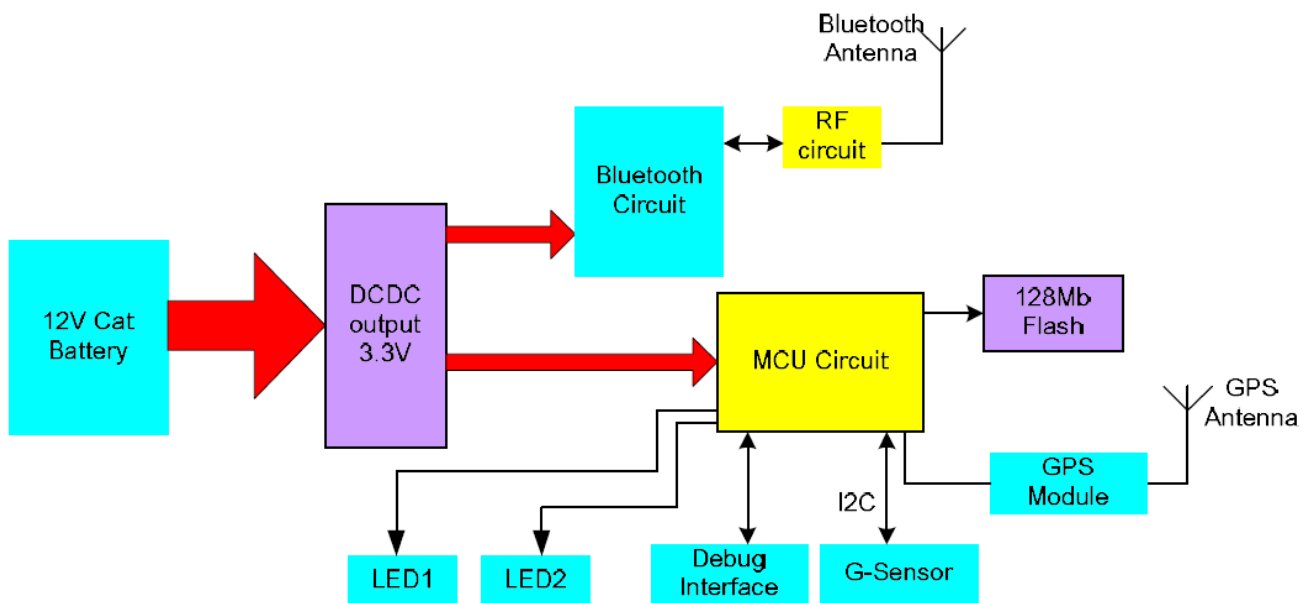
The ELD is a self-contained vehicle tracking device that combines GPS location with Bluetooth LE connectivity.

Logically, the device appears to a user or a server application as a single endpoint device. It can be queried, updated and configured over the Bluetooth LE connection.

The ELD presents. These elements include:

- GPS location engine
- Bluetooth LE connection
- 1 Relay drive pin output
- Serial UART port
- Input voltage
- Timers
- Watchdog lockup protection
- Factory load option for motion detection

Application scene:



This product will be designed based on the STM32 Baseband chipset, which includes GPS functionality, Bluetooth LE, G-sensor. This baseband external connect a 128Mb serial flash.

The device use one GPS antenna and a Bluetooth LE Antenna.

2 ID and Tooling Design

The housing will be provided by customer. The product appearance is shown as follows:

Item	Definition
Dimension	67(L)*39(W)*14(H)mm
Weight	<100g



3 Hardware Design

Basic Hardware

Items	Requirement
Baseband Chipset	STM32
RF Transceiver	Nordic 51822
Memory	Serial Flash 128Mb
Air Interface	Bluetooth LE
Frequency	2.4Ghz
Antenna	Internal Antenna
GPS Antenna	Dedicate high performance ceramic antenna
Debug Interface	Reserved the interface for the R&D test and catch the performance of the ELD board.
Watchdog	Supported (Dedicate Watchdog is Optional)
Motion Detect	G-Sensor
LED	2 LED Supported 2 LEDs(one is RED, one is Green)
Power Consumption	< 5Watts

The product is used in automotive GPS location tracking. When installing this product, the power supply through the car battery. After power on, the machine will be get the GPS location through the GPS circuits, and then send the GPS, G-sensor data to the customer through the Bluetooth LE.

- A. Power Supply
The module is power-on by DC 12V from Car battery or the 24V car battery. The Power supply range from 10V-35V
- B. DCDC circuit
The circuit will convert the voltage into 3.3V, and will power-on the MCU and Bluetooth LE circuit.
- C. MCU circuit
This circuit can save the data of G-sensor and GPS data.
- D. Bluetooth LE circuit
This circuit offers the Bluetooth LE channel to connect with the customer APP.
- E. 128Mb Flash
This flash can save the GPS and time, G-sensor data into it.

FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.