SmartElex GPS HAT

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1. Introduction / product description :

The SmartElex GPS HAT is one of the most easy to use GPS HAT for Raspberry Pi. It is suitable for all version for Raspberry Pi and Raspberry Pi Zero also. HAT takes over the Pi's hardware UART to send/receive data to and from the GPS module. HAT came with Quectel L86 ultra-compact GNSS POT (Patch on Top) module with an embedded patch antenna and utilizes the MediaTek new generation GNSS chipset MT3333 that achieves the perfect performance and having exceptional performance both in acquisition and tracking. Comes as a fully assembled GPS + PCB and an additional 2x20 GPIO header.

2. Product Specification

Features:

- High sensitivity: -167dBm @Tracking, -149dBm @Acquisition.

- Multi-GNSS engine for GPS, GLONASS, Galileo and QZSS

- 99 acquisition channels, 33 tracking channels.

- Balloon mode, for high altitude up to 80km.

- Only 26mA current draw.

- Built in Real Time Clock (RTC) - slot in a CR2031 backup battery for 7-years or more of timekeeping even if the Pi is off!.

- PPS output on fix.

- Internal patch antenna which works quite well when used outdoors + uFL connector for external active antenna for when used indoors or in locations without a clear sky view.

- Fix status LED blinks to let you know when the GPS has determined the current coordinates.

- Great anti-jamming performance due to multi-tone active interference canceller.

- PPS VS. NMEA can be used for time service.

- Support SDK command developed by Quectel.

- Automatic antenna switching function.

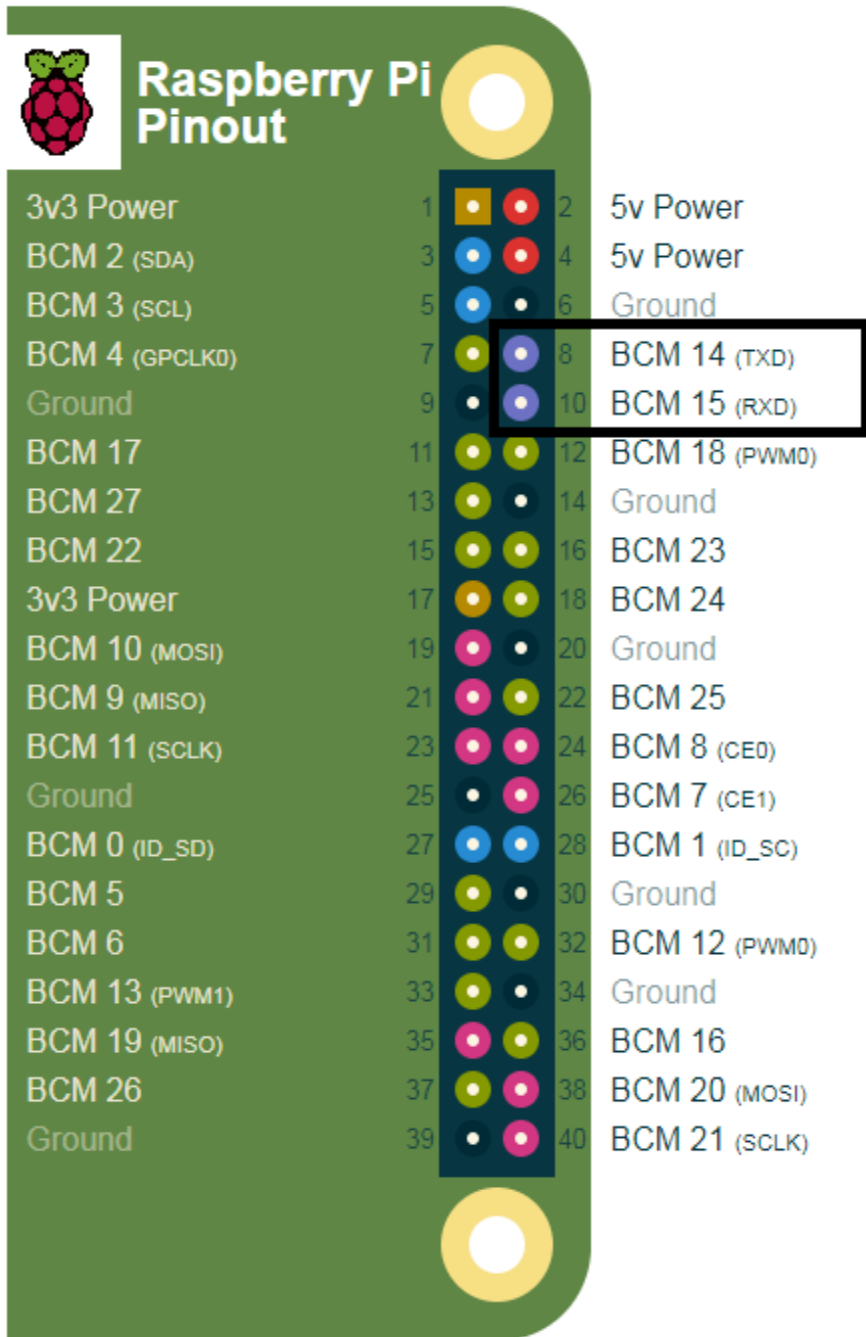- LOCUS, an embedded logger function without the need of host and external flash.
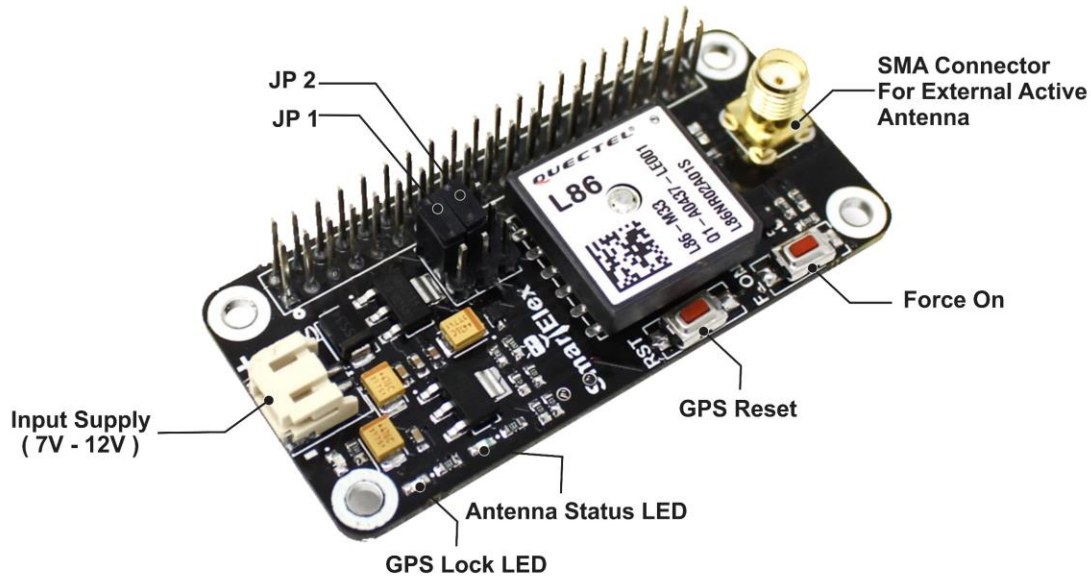
3. Board Dimensions
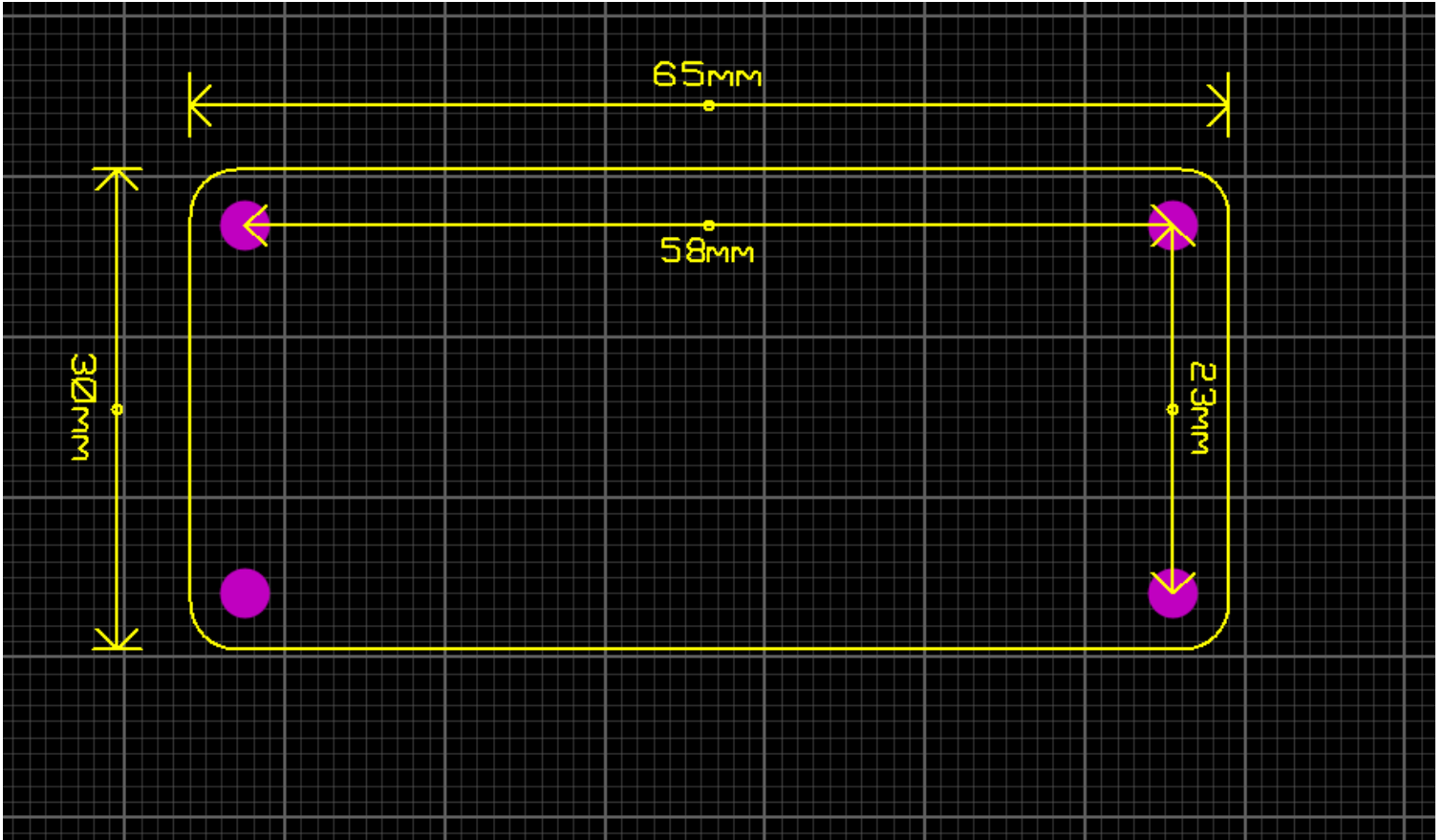
4. <u>Getting Started</u>

Connection diagram:
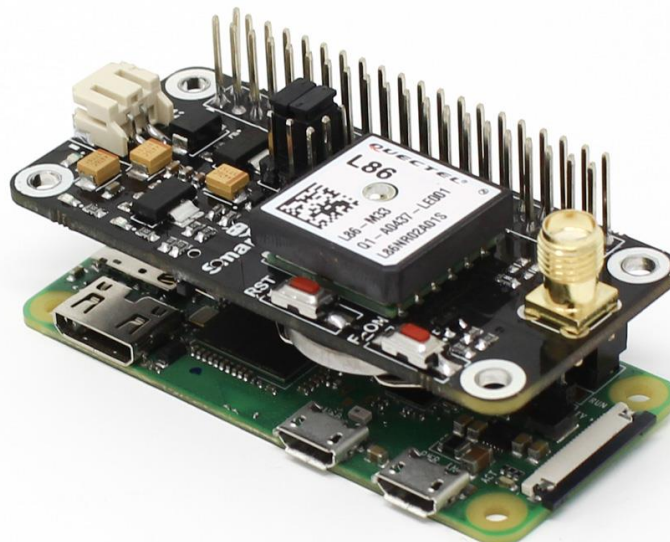
GPS HAT Pins	Raspberry Pi Pins
RXD	BCM 14 (TXD)
TXD	BCM 15 (RXD)

Jumpers: JP1 and JP2:

JP1- Connects RXD of GPS HAT to TXD (BCM 14) of Raspberry pi.
JP2- Connects TXD of GPS HAT to RXD (BCM 15) of Raspberry pi.
Input Supply: 7V to 12V.

GPS Lock LED: Once GPS fix, then this led start blinking by 100ms on in 1 second.

Force on Button: After pressing this button   module to be waked up from backup mode.

GPS Reset Button: L86 module can be restarted by pressing this button. This operation will reset the digital part of the GNSS receiver. Note that Non-Volatile Backup RAM content is not cleared.

External SMA Connector: GPS external active antenna featuring water proof design for use in tough terrain and environment, it maximizes the potential of GPS module by bringing exceptional GPS signal reception performances.

Antenna Status LED: L86 module supports automatic antenna switching function.
LED off- External Antenna Connected.
LED ON- No External Antenna and automatically switched to internal patch antenna.

5. Warranty

- Standard warranty of product is 6 months.

- No warranty will apply if the Product has been subject to misuse, static discharge, neglect, accident, modification, or has been soldered or altered in any way.

- Warranty only applies to manufacturing defect.

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