Wireless Stick

Wi-Fi BLE LoRa node

Arduino-Compatible, LoRaWAN stack

1. Introduction

The Wireless Stick is an Arduino compatible network development board (LoRa, WiFi, Bluetooth). With ultra mini size, fit in a standard breadboard (with), A tiny 64*32 OLED display and Lithium Battery Management (with SH1.25-2P socket) system also assembled on board. It's the best choose for your IoT project development.

The Wireless Stick had well matched RF circuit, provide good and stable RF signal. We also provide an Arduino library for LoRaWAN stack, makes it can directly connect to any standard LoRa gateway via LoRaWAN protocol.

The main control chip of this product is Xtensa LX6 32bit dual core processor: ESP32. a powerful CPU, provide BLE and state of the art WiFi radio.

processor

- Espressif ESP32 chipset
- Dual processor WiFi radio System on chip
- Network processor handles the WiFi connectivity and the IPv6 stack
- 32 Bit Dual-core、240MHz Main Frequency
- Integrating WiFi and Bluetooth
- The main processor is completely free to run the user application
- An additional ULP coprocessor that monitors GPIOs, ADC channels, and controls most internal peripherals

LoRa

- Semtech SX1276 chipset
- For different regions, LoRa offers the following options (Reference only, subject to national laws and regulations)：
  - **433MHz：Europe, max 10dB output**
  - **470 ~510MHz：China, Max 20dB Output**
  - **868MHz：Europe, max 14dB output**
  - **915MHz：North America, South America, Australia and New Zealand, with a maxi output of 20dB output**
- It can be either a LoRa node or a micro gateway.
- Work with Heltec ESP32-LoRaWAN Arduino library.
- Transmission distance: 6 Km in open area
- Output power: up to + 20dBm (+2dBm)

WiFi

- 802.1b/g/n 16mbps

Bluetooth

- Low energy Bluetooth(BLE)
- Classic bluetooth

Human–Computer Interaction

- 0.49 inch 64*32 resolution OLED screen
- Press buttons (reset and program)

Power Supply

- Input power: USB, lithium battery
- Output power: +5V (only when powered by USB), +3.3V
- Integrated Lithium Battery Charging Circuit
- External power supply controlled by IO port facilitates development board access to low power consumption

Interface

- 2 x UART、2 x SPI、2 x I2C、I2S
- Analog channels: 8_12 bit ADCs
- Timers: 4_16 bit with PWM and input capture
- DMA on all peripherals
- 24 GPIO
- 5 input port

storage

- RAM：4MB
- External FLASH: 64M-Bit

Power waste

- Deep dormancy：800uA
- WiFi scanning：115mA
- WiFi AP：135mA
- LoRa 10dB output：50mA
- LoRa 12dB output：65mA
- LoRa 15dB output：110mA
- LoRa 20dB output：130mA

Mechanical structure

- size：60mm x 23mm x 8mm (see appendix)

2. Development environment installation

2.1 Driver installation

For Mac OS, Ubuntu, Windows 7 or above operating system, the driver is automatically installed, if not automatically installed or prompted error, please go to Silicon Labs official website to download and install the latest version of the driver：

CP210X version driver download address

*（As we tested, we found that the driver of the CP210x series chip version 6.7.0.0 is the most stable. This version is highly recommended: **download link**）*

To Windows operating system, for example, if the drive is installed, you can in the "Device Manager - port" to see a similar message:

2.2 Development environment installation

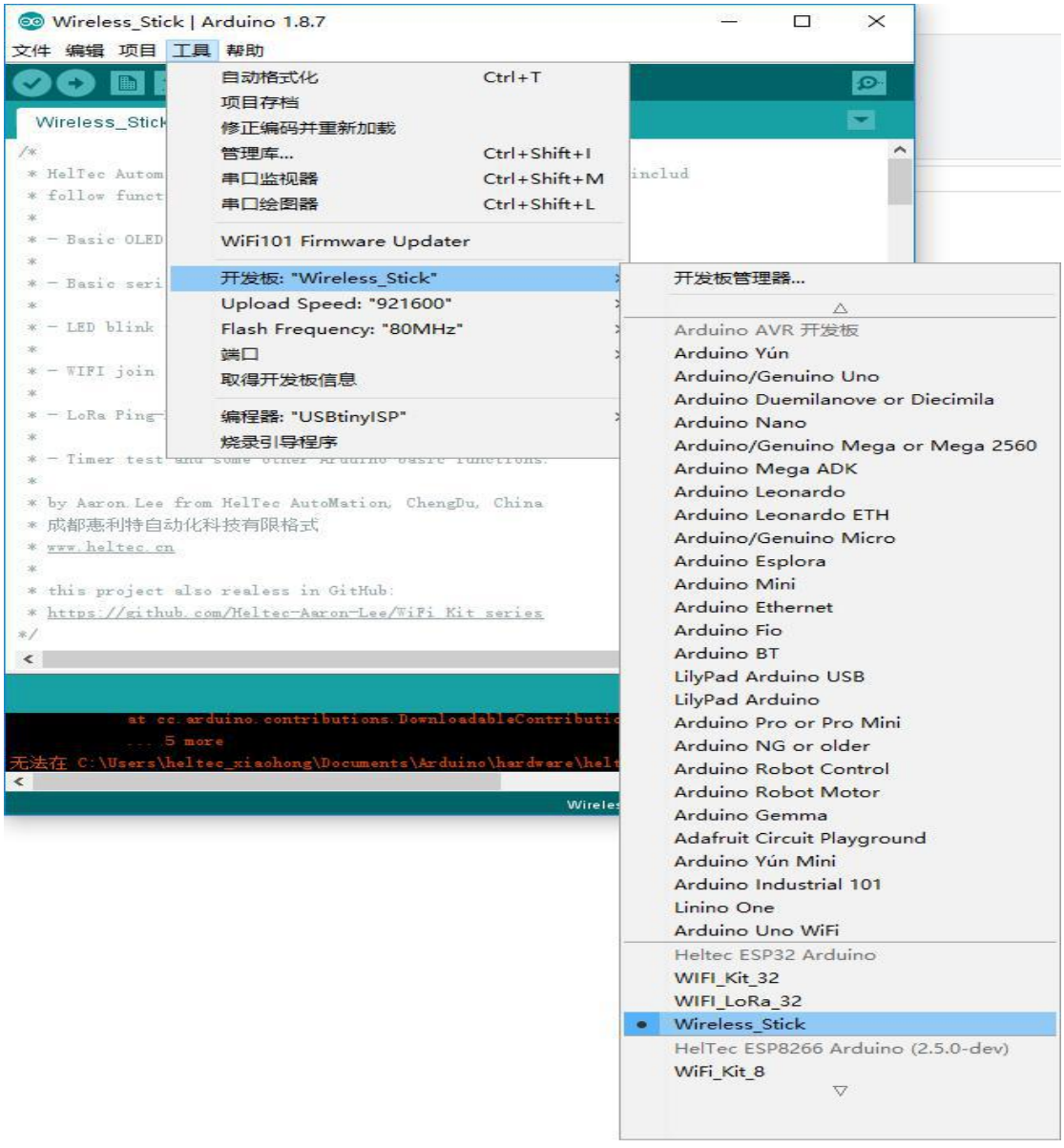
All the operations are based on that your computer had installed the newest Arduino IDE. The Wireless Stick development board belongs to the HelTec WIFI Kit series. For the installation of the development environment, please refer to the Heltec WIFI Kit series development environment:

GitHub：https://github.com/Heltec-Aaron-Lee/WiFi_Kit_series

The latest installation method is posted at this address：

http:///the-installation-method-of-wifi-kit-series-products-in-arduino-development-environment/?lang=en

If everything is ok, you can find the Wireless Stick development board in the Tools - Development Board menu. As shown in Figure 2-1:



You can find the board Arduino routines for various resources in the "Examples" menu, which you can compile directly and download to your WIFI Kit development board. **Attention to the corresponding development board model, choose the**

wrong model may lead to compile errors. As shown in Figure 2-2:

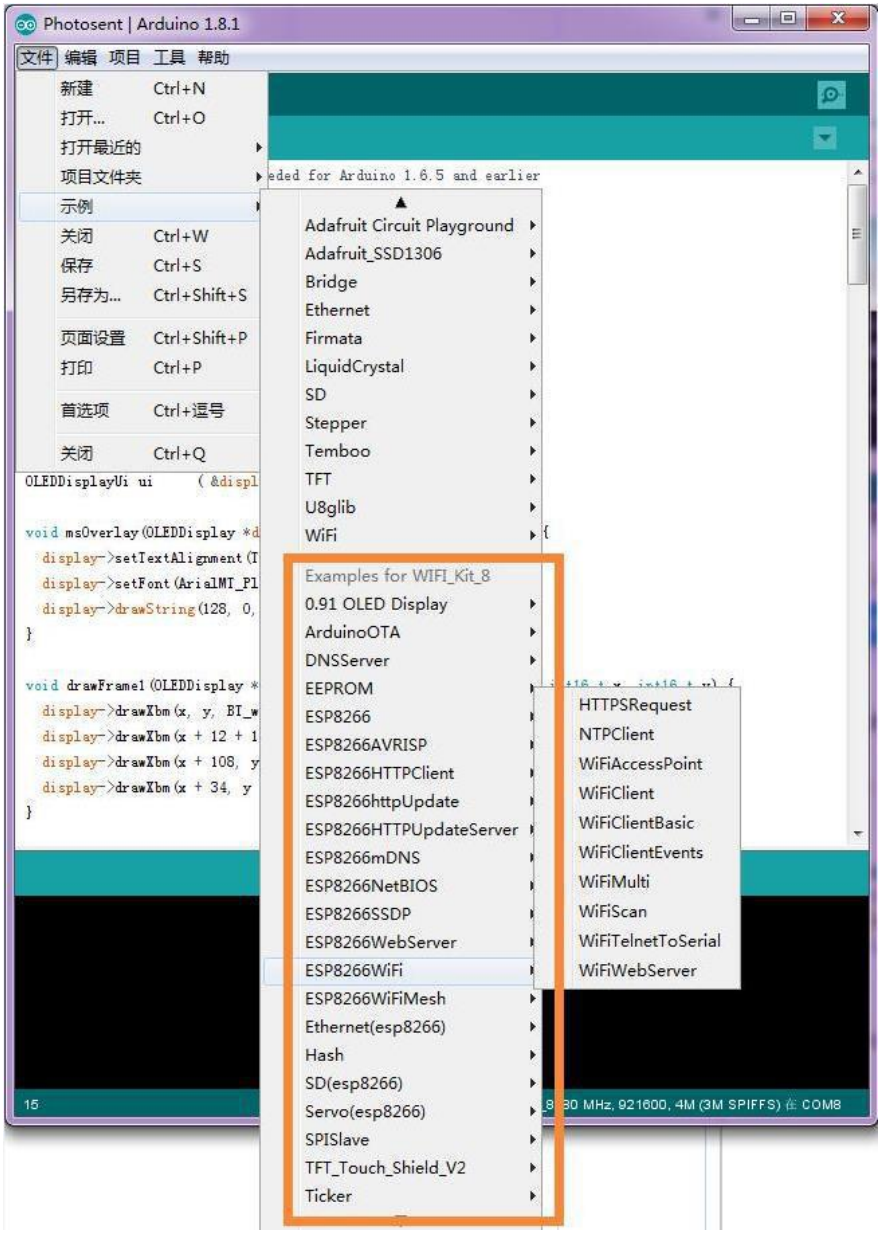


Figure 2-2 Directly available routines

For more information of this product, please visit http:///support/.

3. Resources

- **Summary of Common Questions**

  http:///summary-of-common-problems-in-wifi-kit-series-continuous-update/?lang=en

- **ESP32-LoRaWAN Arduino library**

  https://github.com/HelTecAutomation/ESP32_LoRaWAN

  To prevent unearned copy of the board, to run ESP32-LoRaWAN code need a license relate to your board's Chip ID:

  http:///search/

- **Size and 3D drawing**

  AutoCAD 2004 version board size： Download

  SolideWorks 2014 version 3D drawing： Download

For more questions, please visit

- **Notice**

➢ Wireless Stick have a SH1.25-2P Lithium battery socket, you may need a normal SH1.25 wire to connect with a battery.

➢ The LoRa communication function of the Wireless Stick must be used with an antenna with suitable frequency. If there is no antenna, the LoRa chip may be

damaged. The IPEX interface is left on the development board, but the antenna is not equipped. Please purchase the antenna separately.

Contact us:

- **Company: Chengdu Heltec Automation Technology Co., Ltd. (HelTec AutoMation)**
- **Tel：Telephone / Fax: 028-62374838**

  Technic support email：support@heltec.com

Appendix