



LinkIt ONE User Manual

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Contents

Document Revision History	2
1. Introduction	2
2. Features	3
3. Specifications	4
4. Hardware Overview	5
4.1 Configuration Switches	5
5. Get started	7
5.1 Installing Arduino IDE	7
5.2 Installing Mediatek LinkIt ONE SDK	7
5.3 Installing Drivers	7
5.4 Updating Firmware	8
5.5 Uploading Code (Blinky)	10
5.6 Connecting Antennae	10
5.7 Inserting SIM Card and SD Card	11
5.8 Exploring LinkIt ONE SDK Examples	12
6. Compatible Groves and Shields for LinkIt ONE	13
7. Tutorial of Sidekick Basic Kit for LinkIt ONE	14
8. Related Projects	15
8.1 LinkIt ONE IoT Demo	15
8.2 Pringles Can antenna with a LinkIt ONE	16
9. Resources	17

Disclaimer

For physical injuries and possessions loss caused by those reasons which are not related to product quality, such as operating without following manual guide, natural disasters or force majeure, we take no responsibility for that.

Under the supervision of Seeed Technology Inc., this manual has been compiled and published which covered the latest product description and specification. The content of this manual is subject to change without notice.

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The design of this product (including software) and its accessories is under tutelage of laws. Any action to violate relevant right of our product will be penalized through law. Please consciously observe relevant local laws in the use of this product.

1. Introduction

The LinkIt ONE development platform is an open source, high performance board for prototyping Wearables and IoT devices. It is based on the world's leading SoC for Wearables, MediaTek Aster (MT2502) combined with high performance Wi-Fi (MT5931) and GPS (MT3332) chipsets to provide you with access to all the features of MediaTek LinkIt. It also provides similar pin-out features to Arduino boards, making it easy to connect various sensors, peripherals, and Arduino shields.

LinkIt One is an all-in-one prototyping board for IoT/wearables devices. Integrating GSM, GPRS, Wi-Fi, GPS, Bluetooth features into a basic Arduino form factor.

LinkIt ONE is a co-design product by Seeed Studio and MediaTek. It brings together both parties' technology in open hardware and industrial leading reference designs for Wearables and IoT devices to create a powerful development board.

Notes: LinkIt ONE board comes with a lot of features and its SDK (Software Development Kit) is quite comprehensive. Read this document thoroughly once before using the board. Being a co-design product basic level Technical Support for hardware is provided at Seeedstudio LinkIt One Forum. Advanced Technical support is available at MediaTek LinkIt One Forums. These forums have a good number of FAQs about this board. Please search solutions for your requirements/issues first before posting questions for saving your time.



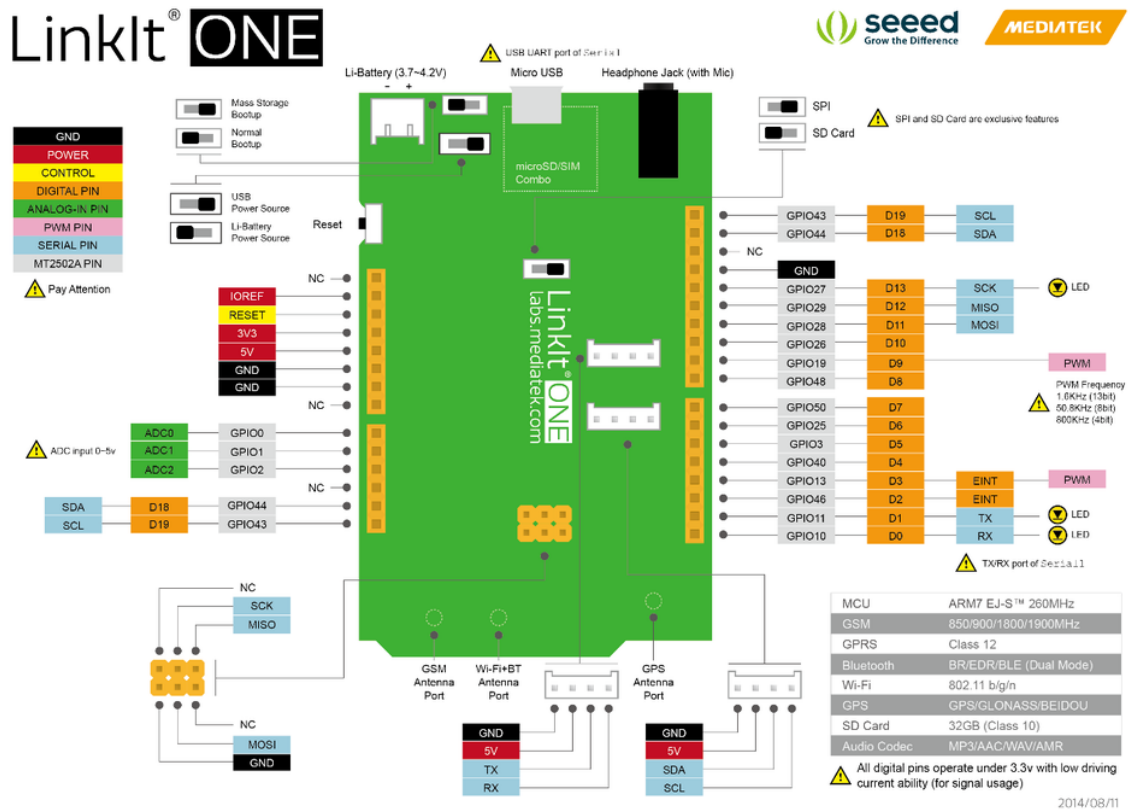
2. Features

- Includes ARM7 EJ-S™, GSM, GPRS, Wi-Fi, Bluetooth BR/EDR/BLE, GPS, Audio codec, and SD card connector on a single development board.
- Pin-out similar to Arduino boards, including Digital I/O, Analog I/O, PWM, I2C, SPI, UART and power supply, compatible with Arduino.
- Provides various interfaces for connecting to most sensors, peripherals, Groves, and other widgets.
- You are what you wear. Using LinkIt ONE together with MediaTek LinkIt SDK (for Arduino) you will be able to easily turn your ideas into practical prototypes and make them a reality with the Seeed productization and agile manufacturing service.

3. Specifications

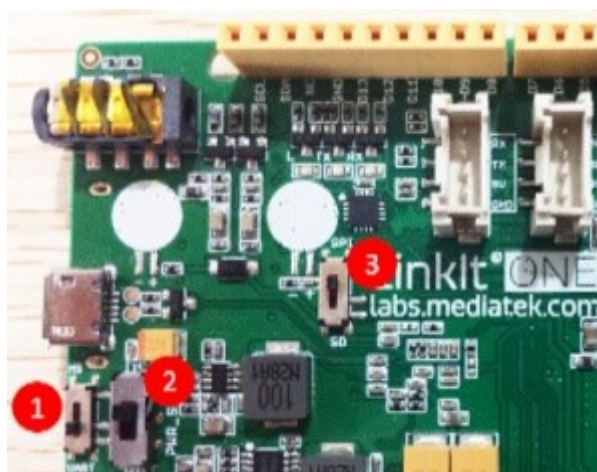
Parameter	Value
Chipset	MT2502A (Aster, ARM7 EJ-S™)
Clock Speed	260MHz
Dimensions	3.3x2.1 inches
Flash	16MB
RAM	4MB
DC Current Per I/O Pin	1mA
Analog Pins	3
Digital Output	3.3V
Analog Input	5V
UART	Software based(Serial) ,also known as USB UART and Hardware Serial(Serial1, D0&D1)
SD Card	Up to 32GB(Class 10)
Positioning	GPS(MT3332)
GSM	850/900/1800/1900 MHz
GPRS	Class12
Wi-Fi	802.11 b/g/n
Bluetooth	BR/EDR/BLE(Dual Mode)

4. Hardware Overview



4.1 Configuration Switches

There are 3 slide switches on LinkIt ONE which are used to configure the function/working mode:



Switch No.	Functionality	Position 1 - Functionality	Position 2 - Functionality
1	Program Mode	MS: In this position, when connected to PC, LinkIt One board will be shown as 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 battery, set the switch to this position and connect the board to PC.	USB: Board powered by USB port. Set the switch to this position when there is no battery connected to program the board.
3	SD/SPI	SPI: This position allows access of external SPI pins (D10 - D13)	SD: This position allows the code to access SD card. This mode also disables access of SPI pins (D10-D13).

5. Get started

5.1 Installing Arduino IDE

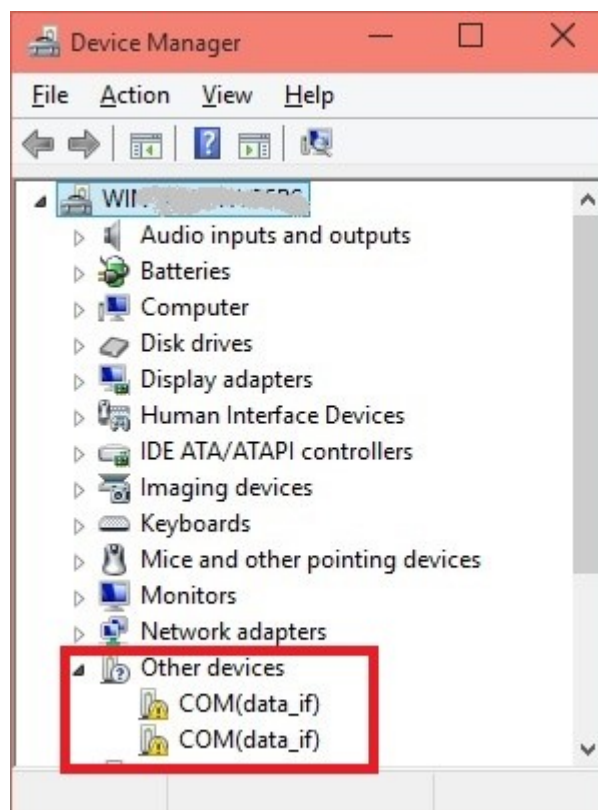
Download latest [Arduino IDE](#). For more advanced topics, follow [MediaTek instructions](#).

5.2 Installing Mediatek LinkIt ONE SDK

- Download [LinkIt SDK for Arduino](#). At the time of writing this guide, **v1.1.11** Windows SDK (Beta) was used. Read the video guide for Windows OS and MAC OS X platforms here.
- Extract the downloaded files to Arduino IDE folder.
- Double-Click the .EXE file and install.
- With the installation of LinkIt ONE SDK, Arduino IDE works a LinkIt ONE IDE.

5.3 Installing Drivers

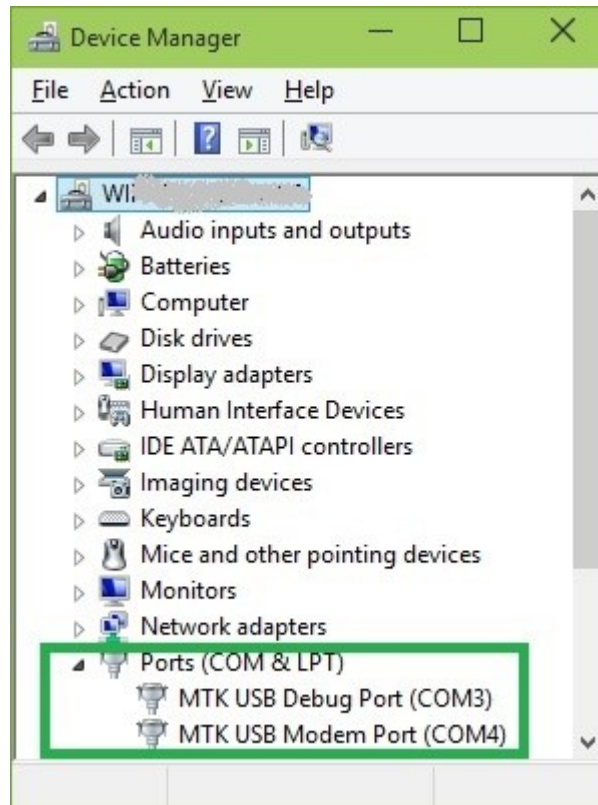
- Disable **Driver Signature Enforcement** if you are using Windows 8/8.1 OS. Read [instructions](#).
- Put the MS/UART slide switch to UART position and connect LinkIt ONE to PC.
- Open Device Manager, the following COM ports will be displayed.



- Install driver from `..\LinkIt_ONE_IDE\drivers\mtk` folder.
- After installing drivers, Device Manger should display the following two ports:

MTK USB Debug Port used for uploading code

MTK USB Modem Port used for printing message, such as `Serial.println()`

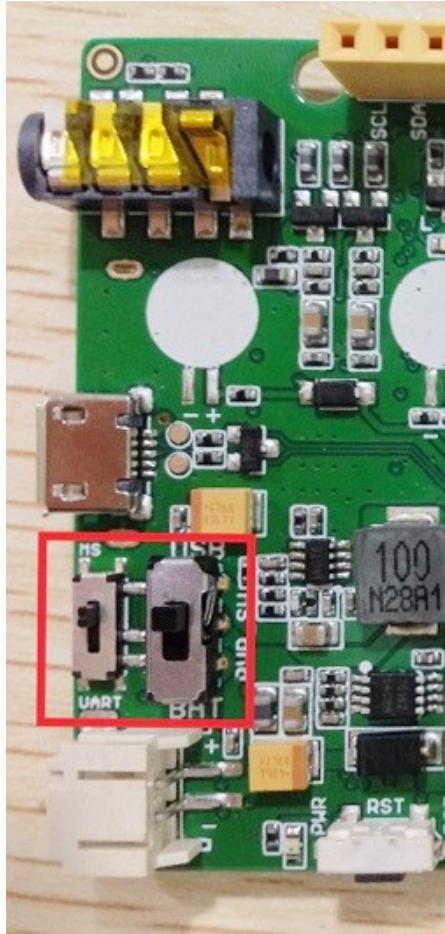


NOTE: There is no official Windows 10 driver yet. Windows 10 users can manually select the Windows 7 driver files from `\LinkIt_ONE_IDE\drivers\mtk` from **Device Manager**. This is known to work on few PCs.

5.4 Updating Firmware

The firmware of LinkIt ONE board needs to be updated once in a while. Latest LinkIt ONE SDK comes with a version of firmware.

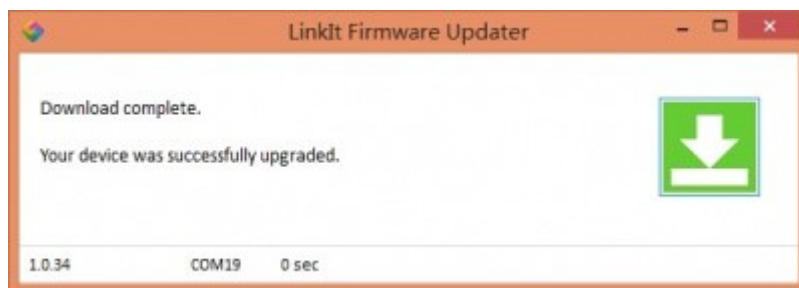
- Before starting the firmware update, make sure the slide switches are in proper position (**MS/UART** should be in **MS** position. **USB/BAT** in **USB** position):



- Run FirmwareUpdater.exe application from `..\LinkIt_ONE_IDE\hardware\tools\mtk` folder.

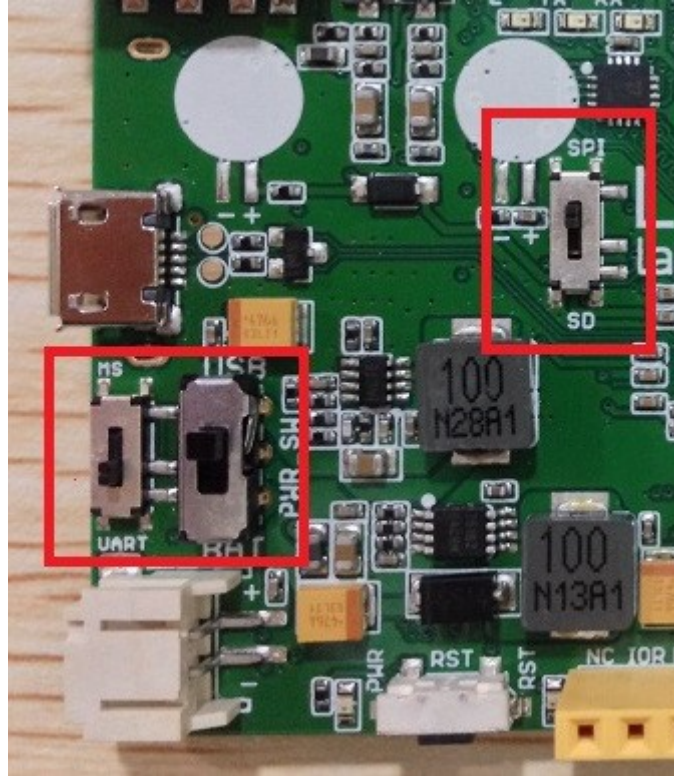


- Click the button and then connect LinkIt ONE to PC. Wait for 1 minutes for the update to complete successfully.



5.5 Uploading Code (Blinky)

- The slide switches should be configured for firmware upload (i.e Put MS/UART in UART position and Power switch in USB position).



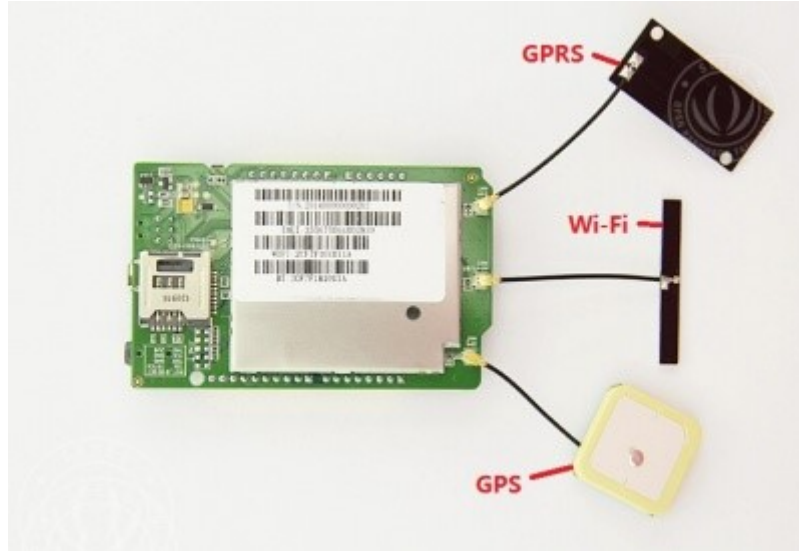
- Open **File > Examples > Basics > Blink** in LinkIt ONE IDE.
- Select the COM Port number corresponding to **MTK USB Debug** port in **Tools -> Port**.
- Compile and upload the code.
- LED marked L should blink

5.6 Connecting Antennae

There are three antennae provided with LinkIt ONE. They are used for:

- GSM/GPRS
- Wi-Fi/BT
- GPS

Connect the antenna as the following image.

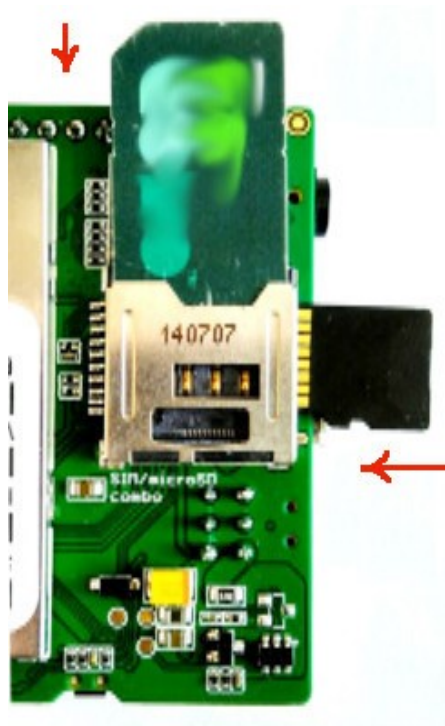


Note:

- While pulling the antenna from board, do it with care. Please do not use brute force.
- Try to use the force perpendicular to the direction of the board, otherwise you might damage the antenna pad.

5.7 Inserting SIM Card and SD Card

LinkIt ONE accepts standard size SIM Card and Micro SD Card. Insert them as per the following image:



5.8 Exploring LinkIt ONE SDK Examples

LinkIt ONE SDK comes with many examples / sample code to use peripherals like GSM, GPRS, WiFi, BT, Audio, GPS etc. Explore them first and read about API documentation. API documentation are available in [User Guide](#) and [API References site](#).

6. Compatible Groves and Shields for LinkIt ONE

- We manufacture hundreds of Groves and Shields, including sensors, actuators, displays and other modules.
- You can implement your ideas with those Groves and Shields easily.
- But, LinkIt ONE does not support all of them.
- We prepared a list of compatible Groves and Shields: [Download the list](#).

7. Tutorial of Sidekick Basic Kit for LinkIt ONE

The Sidekick Basic Kit for LinkIt ONE is designed to be used with your LinkIt ONE board. This kit will help you quickly get along well with the platform of LinkIt. It includes many of the most popular accessories for DIY projects: like Breadboard, Jumper wires, Color LEDs, Resistors, Buzzer, etc. All these come in a handy box, which is easy to transport and mimimises clutter. The kit includes a complete guide that will familiarize you with a wide range of electronic components while you create small, simple, and easy-to-assemble circuits. There are 10 different courses outlined that will offer a best way for beginner to get familiar with LinkIt ONE.



SKU:110060038

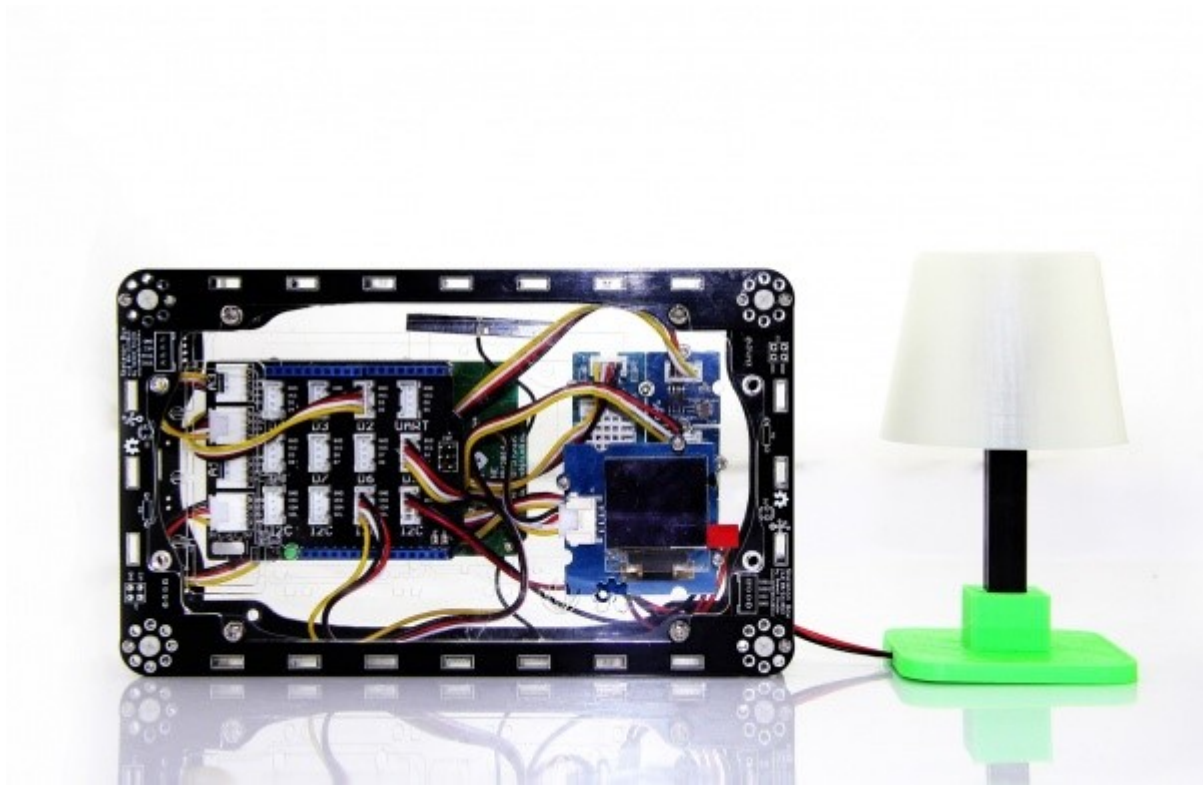
- The Basics
- Hello World
- Push Button
- Marquee
- Colorful World
- Analog Interface
- Mini Servo
- Light Sensor
- SMS Control the LED
- Get Temperature with Webpage

- [Github Repo for Sidekick Basic Kit for LinkIt ONE](#)

8. Related Projects

If you want to make some awesome projects by LinkIt ONE, here's some projects for reference.

8.1 LinkIt ONE IoT Demo



This is an IoT demo make by LinkIt ONE and [Grove](#).

With this demo, we can:

- Display household temperature, humidity, luminosity, volume control data collection on OLED screen
- Cloud service, data uploaded to Cloud platform Xively, real-time monitoring
- Data retention for reviewing how data changes over time
- Remote control Household Appliances by sending a message
- Table Lamp, 3D Printing, controlled by your phone

I want to make it.

8.2 Pringles Can antenna with a LinkIt ONE



Make a focused antenna with a pringles can.

I want to make it.

More Awesome Projects by LinkIt ONE

9. Resources

Schematic / Design Files:

- [LinkIt ONE V1.0 Eagle File](#)

Software:

- [MediaTek_LinkIt_SDK_for_Arduino](#)

Datasheets and User Guides:

- [LinkIt_ONE_Hardware_Reference_Design_v1_0](#)
- [LinkIt ONE_Pinout Diagram_v1.0 【PDF】](#)
- [MediaTek_LinkIt_Developers_Guide_v1_0 【PDF】](#)
- [MediaTek_MT2502A_SOC_Data_Sheet_v1_0 【PDF】](#)
- [MediaTek_MT5931_Wi-Fi_Data_Sheet_v1_0 【PDF】](#)
- [MediaTek_MT3332_GPS_Data_Sheet_v1_0 【PDF】](#)

Getting Help:

- [MediaTek LinkIt ONE Forums](#)
- See Also: [Sidekick Base Kit for LinkIt ONE](#)