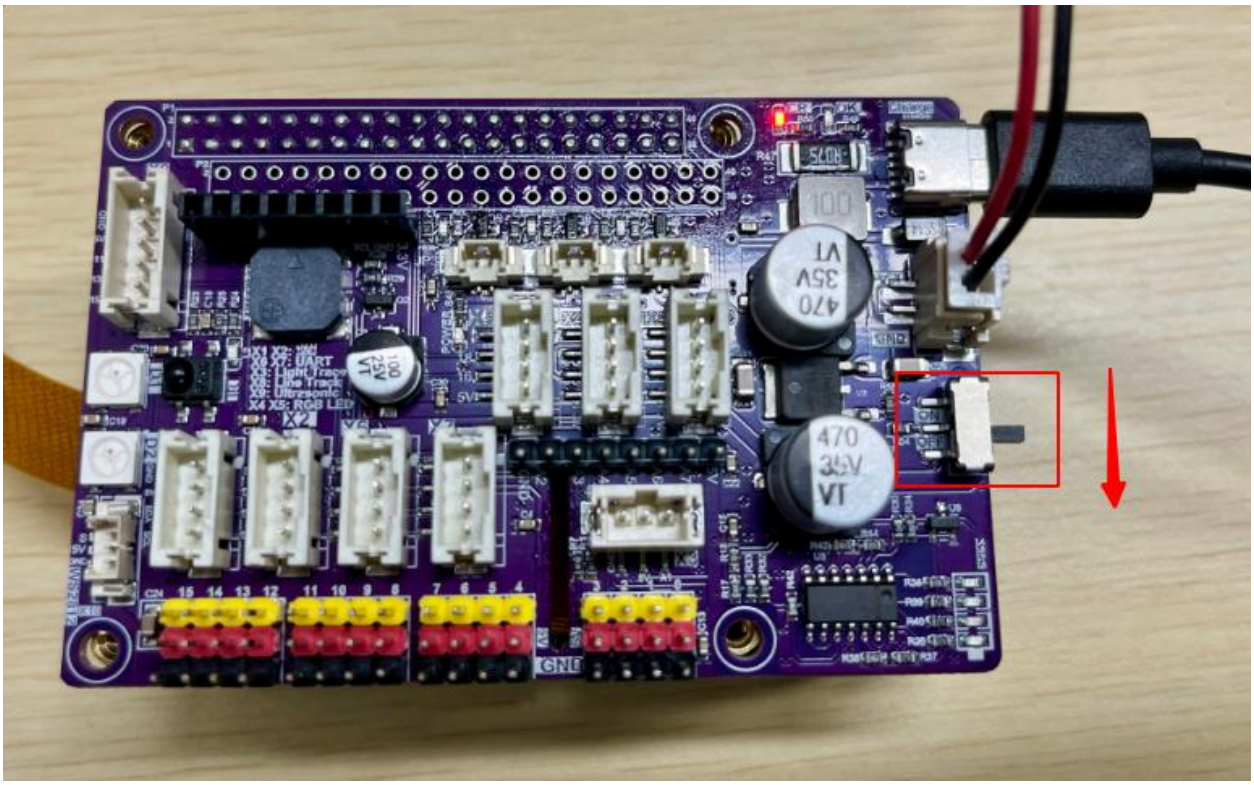
Lesson 31 Battery Charging and Precautions

Note: When charging, ensure the power switch of the expansion board is turned off to avoid the Raspberry Pi and the charging function operating simultaneously.



31.1 Overview

The Adeept Robot HAT V3.2 we provide include charging functions, which provide convenient charging methods for the product and provide users with more flexible and convenient power solutions. This function usually uses the USB Type-C interface, which has the characteristics of

fast charging, high transfer rate and reverse plug function. The interface can also provide power to the motherboard at the same time.

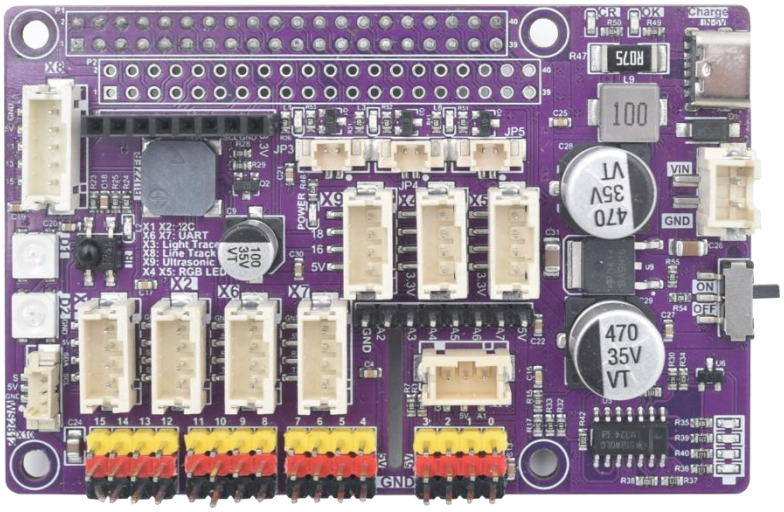
31.2 Introduction to Charging

The Adeept Robot HAT V3.2 integrates a charging control chip and related circuits to ensure charging safety and efficiency. There are two LED indicators on the Adeept Robot HAT V3.2 to show the charging status.

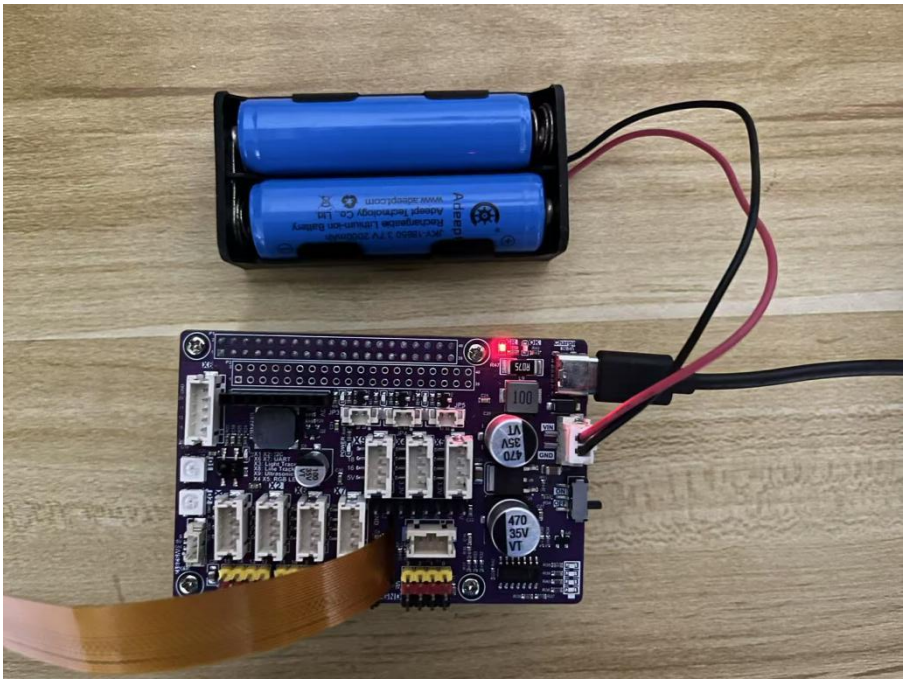
LED color	Description
Red LED is **on,** Green LED is **off**	Charging the 18650 battery.
Red LED is **off,** Green LED is **on**	The battery is fully charged or the battery is not connected.
Red LED is **off,** Green LED is **off**	The USB cable is not connected.
It is recommended that when the product is not in use, it is recommended to turn off the Adeept Robot HAT V3.2 switch and stop powering the HAT and Raspberry Pi.	

31.3 Instruction Manual

1. Turn off the Adeept robot control board switch.



2. Use Type-C cable to correctly connect the Adeept Robot HAT V3.2 and 5V charger.



3. Since the charging function is built into the Adeept Robot HAT V3.2 , using a larger power charging circuit will cause the charging chip to heat up and affect other circuit components on the Adeept Robot HAT V3.2 . Therefore, we control the charging power within a smaller range to avoid possible damage to other components and avoid scalding users with the exposed charging chip. At this time, there will only be **slight heat on the Adeept Robot HAT V3.2, which is**

normal. But the charging time will be relatively long. It takes about **2-3 hours** to fully charge two 18650 batteries.

31.4 Matters Needing Attention

1. Please use a 5V charger to charge the battery. to ensure safe and efficient charging.
2. Avoid use in humid and dusty environments to prevent damage to the charging interface.
3. Avoid excessive heating when charging, and do not charge in high temperature environments to avoid affecting battery life or causing safety issues.
4. During the charging process, the board will heat up slightly, which is normal. If the board temperature is too high, please unplug the power supply in time and stop charging.
5. The built-in charging function of the board ensures flexible charging and use of the product, but you still need to pay attention to safety during use.