



# Loona KY004LN01 Smart Toy Robot User Manual

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## KY004LN01 Smart Toy Robot

### IMPORTANT SAFETY INSTRUCTIONS

#### -SAVE THESE INSTRUCTIONS



#### CAUTION

Please follow the cautions below as there may be a risk of overheating, fire or explosion.

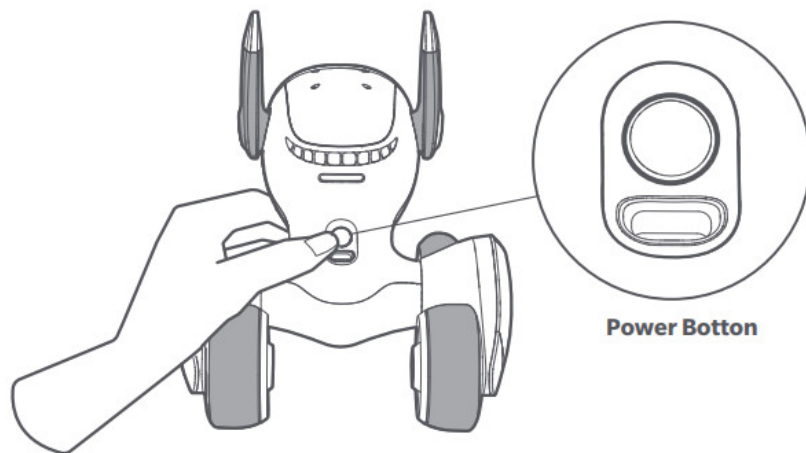
- Lithium-ion battery is built into the product.
- Charge the product with a 5V/2A adapter;
- Do not place the product in or near fire, such as near a fireplace, or put the product in a microwave. / Keep your device away from radiators and heat sources.
- Do not leave the product in hot weather.

- Do not use your equipment in a wet environment, for example, near a bath tub, sink, or swimming pool or in a wet basement.
- Do not disassemble, crush or pierce the product.
- Do not expose the product to excessive shock such as dropping from a high place.
- Operating Temperature range is 10°C to 40°C. Please avoid using your product in extremely hot or extremely cold environments.
- Keep the product dry. Do not spill food or liquids on your equipment.
- Dispose of the product appropriately.

## Quick Start Guide

Provides information needed for starting your life with Loona. Please read this document first.

1. Press and hold the power button (as shown) at the back of the neck for 3 seconds to turn Loona on.



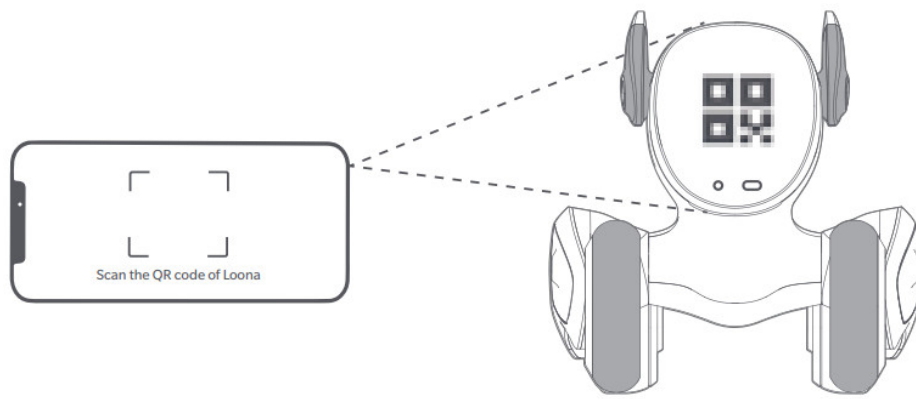
2. Download Loona App on your mobile device and register an App account.

Loona App account is necessary to provide unique bonding between you and your Loona, and to activate Loona for the first time.



**Loona**

3. Choose "Connect Loona" on the App and follow the simple instructions. Scan the QR code shown on Loona's screen to set WiFi connection.



4. If it's your first Loona, start from Loona's birth story and follow the App guidance.

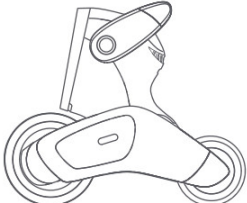
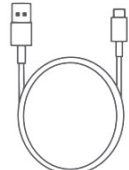

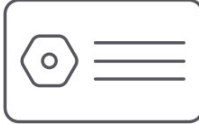
## Intro to Loona

Provides specifications and precautions to ensure safe use.

### Introduction

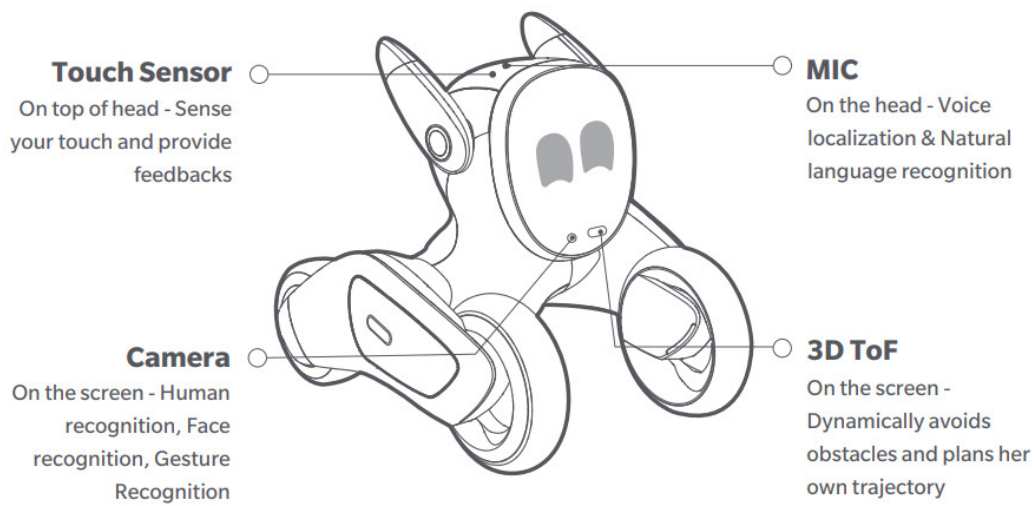
Loona is a lovely PETBOT with unique personalities and pet-like behaviors. She roams freely in the house and loves to play with people, other pets and even by herself. Loona also enjoys spending time with you and bringing happiness to you and your family. With over 1000 expressions, she will let you know how she feels. Loona also provides you with household functions such as remote monitoring and FPV control. She is smart, intuitive, affectionate, and playful, a great friend and an incredible pet.

### Include in the box

 <b>Loona x1</b>	 <b>Type-C USB Cable x1</b>
 <b>User Manual x1</b>	 <b>Warranty Card x1</b>

### Specification

Loona has an AI-powered CPU which makes Loona can perform face recognition, body detection, gesture recognition, 3D motion capture, object recognition and more. Equipped with a 4-microphone array and powered by Amazon Lex, Loona can localize sound source, understand voice commands and provide feedback while keeping your information secure. Loona has a 3D-ToF (time-of-flight) camera that detects environmental obstacles and generates data to help her move swiftly in space and navigate in the environment. She is also integrated with an RGB camera to capture and track moving objects. Loona has six motors, and her rear wheels are driven by two brushless servomotors of which maximum speed is up to 900 rpm(round-per-minute).



## Specs

Dimensions	8.3"L x 6.8"W x 6.8"H (210mm x 172mm x 172mm)
Weight	2.42lbs (1,100g)
CPU	Quad-core Cortex A53, up to 1.5GHz ,Dual-core BPU 5 TOPS(Tera Operations Per Second)
Co-processor	Cortex M4, 100MHz
Audio-processor	Dual-core DSP , 360MHz, HIFI Audio Engine
Wi-Fi	2.4G/5.8G dual-band, 802.11 a/b/g/n
Memories	LPDDR4 2GB(RAM); eMMC5.0 8GB(ROM)
Display	2.4" LCD
Camera	RGB Camera 720P
Sensors	3D ToF(Time of Flight) Sensor; Touch Sensor; 3-axis accelerometer; 3-axis gyroscope; 3-axis geomagnetic sensor
Microphone	4-Microphone array
Actuators	Outer rotor brushless DC servomotor x2(wheels); Brushed DC servomotors x4(body and ears)
Battery	1350 mAh 11.1 V Lithium-Ion rechargeable battery
Speaker	2W Speaker
Charging	USB-type C port; Charging contacts for charging station

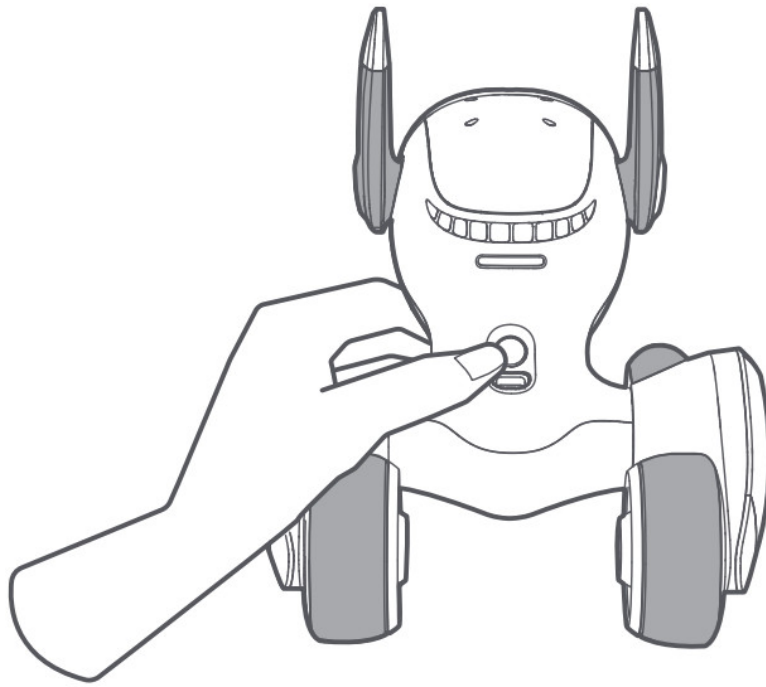
## Instruction for use

### Retain the original package

Please retain the original package. If needed, it provides secure protection for Loona during transportation.

### Turn on and turn off

Press and hold the power button at the back of the neck for 3 seconds to turn Loona on. Press and hold the power button for 3 seconds to turn it off. If this does not work, press and hold the power button for 10 seconds or longer to force shutdown.



### **Press and hold the power button**

- 3 seconds to turn on
- 3 seconds to turn off
- 10 seconds to force shutdown

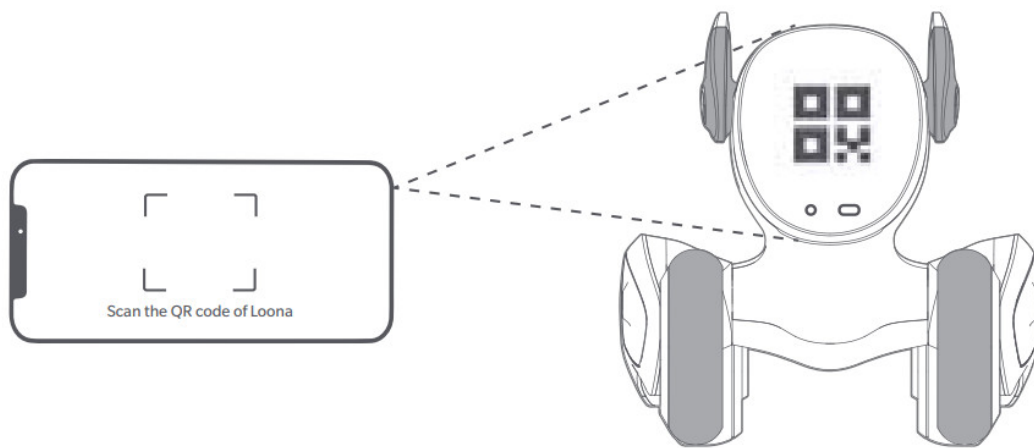
### **WiFi connection**

Most of Loona's interactive functions can be used without WiFi. However, some functions require cloud servers, such as voice recognition and remote monitoring based on Amazon Web Service. Loona can get the software updates after connecting to WiFi.

1. Press and hold the power button for 7 seconds and release it until the screen of Loona shows a QR code.

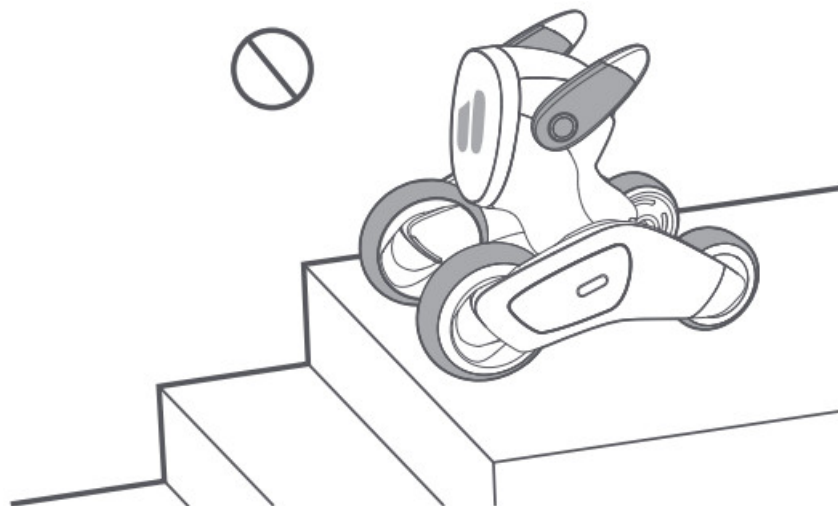


2. Scan the QR code and follow the instructions on the Loona App to set up the WiFi connection.

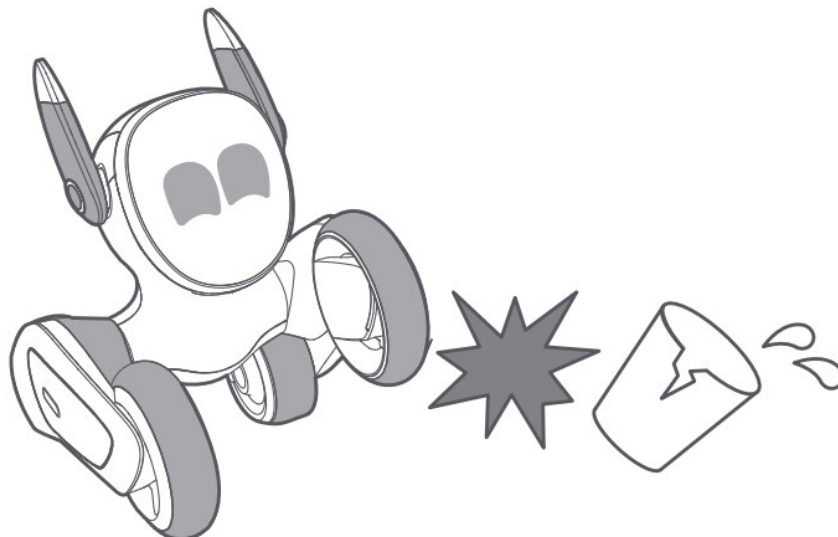


## Environment for use

- It is recommended that you use Loona on a wooden floor or a carpet with short threads. Do not use Loona outdoors, especially on a hard floor, such as a concrete or asphalt floor, and on lawn, to avoid scratching and ingress of water or foreign matters causing malfunction.
- Do not use Loona in a place from which Loona may fall off or in an unstable place, for example, with vibration or an uneven surface. Loona may fall off or fall over, resulting in physical damage or malfunction.



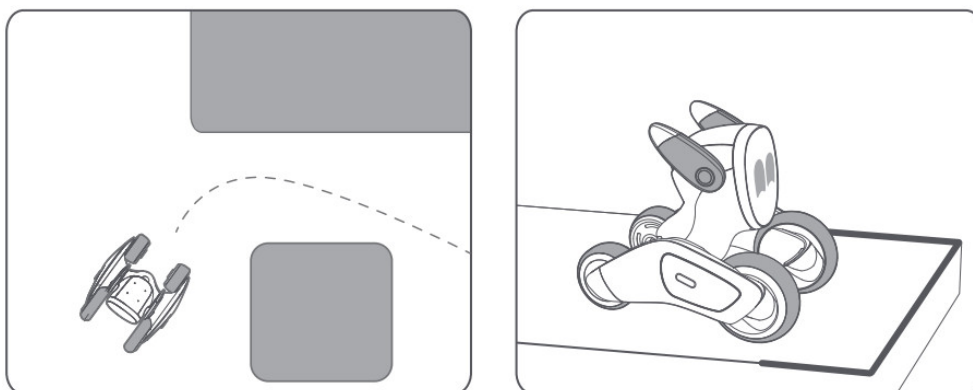
- Do not place fragile or dangerous objects around Loona. Loona moves around on its own and may cause damage to your property or accident.



## Pathing planning

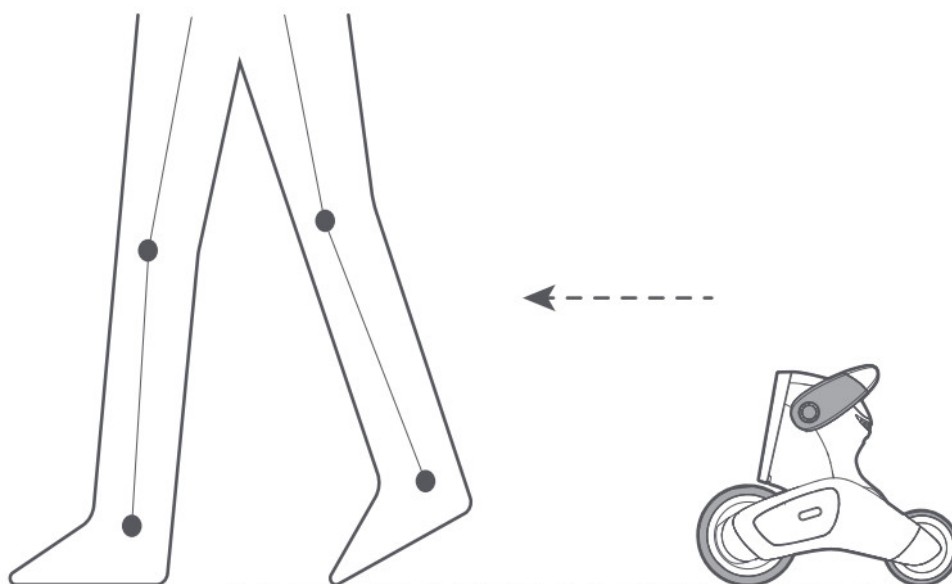
Equipped with a 3D-ToF (time-of-flight) camera that can detect environmental obstacles and generate data, Loona has 3D-intelligent trajectory planning which makes her move freely around the house. Loona also knows how to prevent herself from falling when an edge is near.

Loona's cameras may malfunction when subject to intensive direct sunlight, such as by the window in the daytime.



### Visual perception

With a high-definition RGB camera below Loona's face and a CPU with up to 5 Tops of computing power, Loona has powerful visual perception like face recognition, body detection, gesture recognition and more, which allows Loona to have tons of fun interactions, such as running after the ball and following you like a pet.

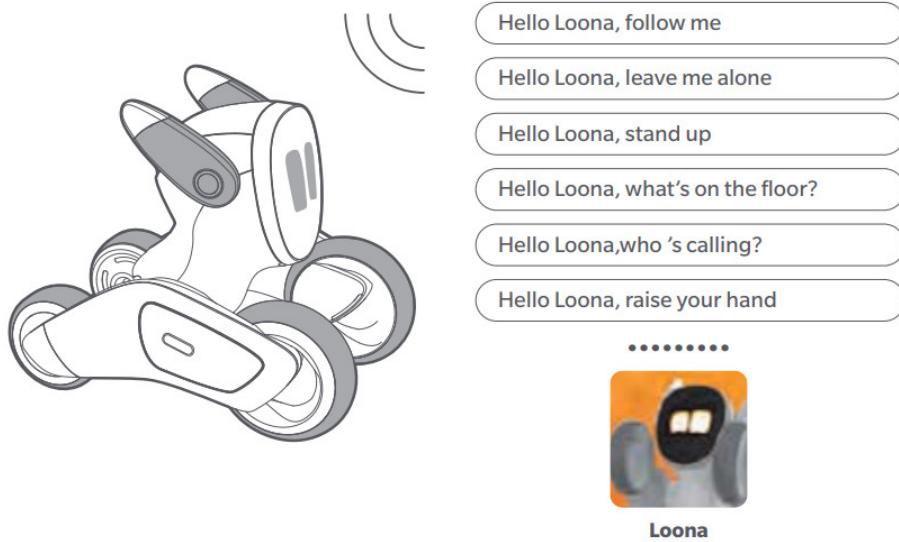


### Voice recognition

Powered by Amazon Lex™, Loona is able to recognize and understand voice commands and provide feedback while keeping your information secure.

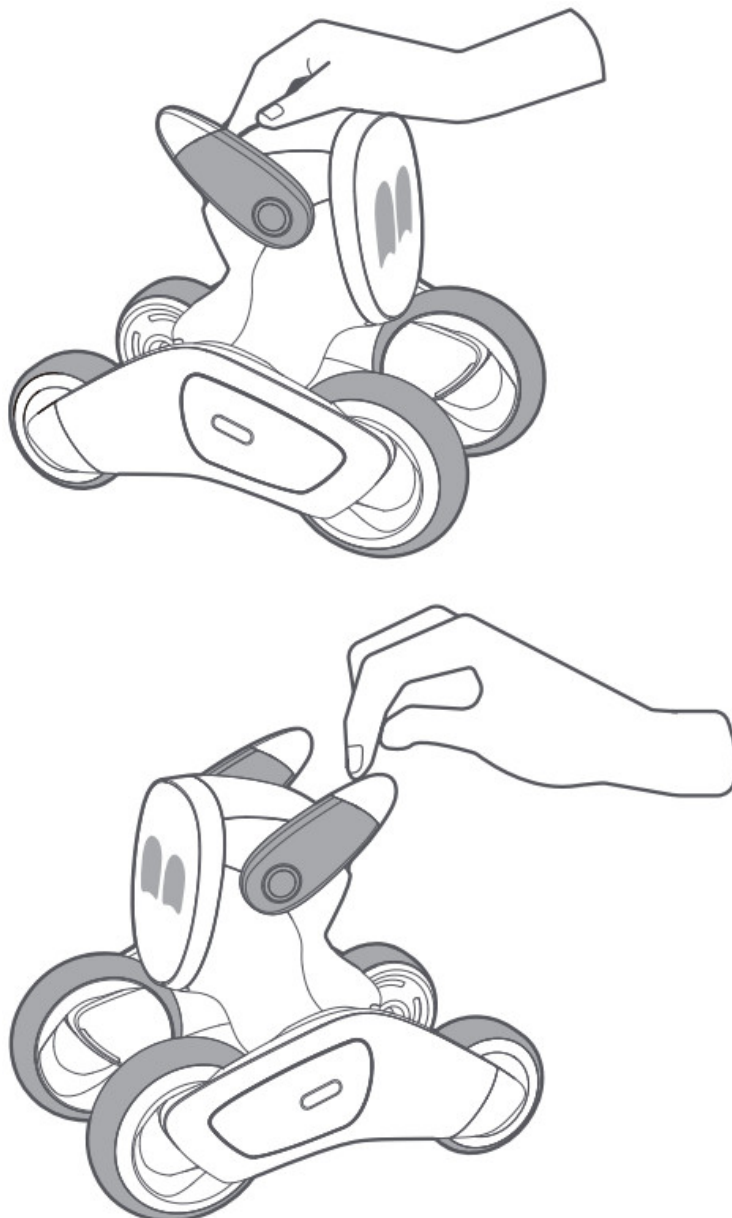
Wake up Loona with words, "Hello Loona" first, and then perform voice command. You can check all the voice commands list on Loona App, and we will keep updating the voice commands as well as the interactive contents.





### Sense of touch

With a touch sensor on top of the head, Loona will give lovely feedbacks if you touch her head. Loona also reacts if you gently tease her ears.

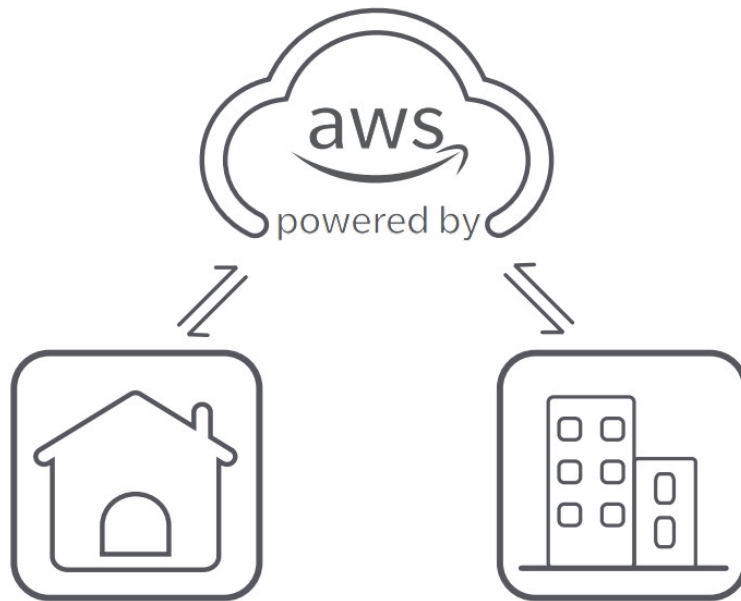


### Remote control



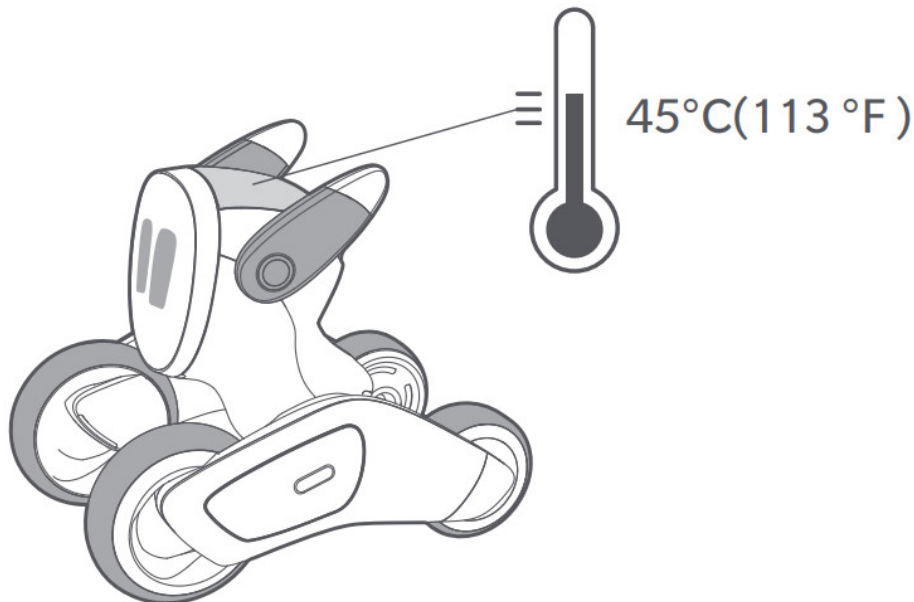
Powered by Amazon KVS™(Kinesis Video Streams), Loona can be a mobile camera. You can control your Loona remotely to move around in the house and see what your pet is up to through Loona App.

The Amazon KVS™ satisfies compliance requirements for virtually every regulatory agency around the globe. Meanwhile, Loona uses a data encryption chip to protect user data and user privacy at the hardware level.



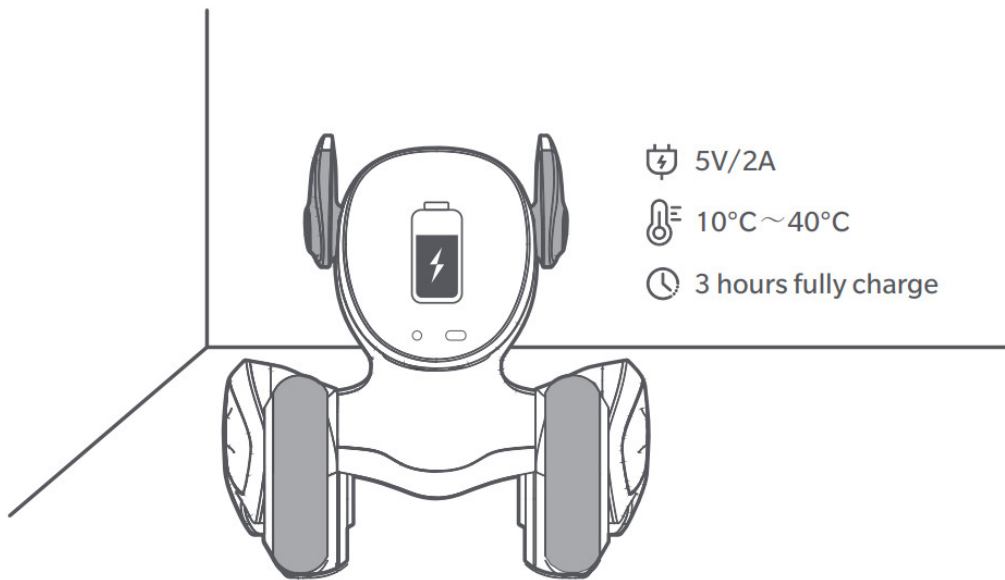
### Heat generation

While you are using or charging Loona, Loona's body temperature may rise. Heat generation is caused by the operation of internal electric circuits or the electric current that flows during battery charge and it does not indicate a malfunction. The amount of heat generated by Loona depends on its activity. When Loona or the supplied AC adapter is extremely hot to touch compared to its usual state, press and hold the power button at the back of the neck for 3 seconds to turn off Loona, and unplug the power cord of the AC adapter from the AC outlet. Loona also might shut down automatically when it is extremely hot to avoid any damage.



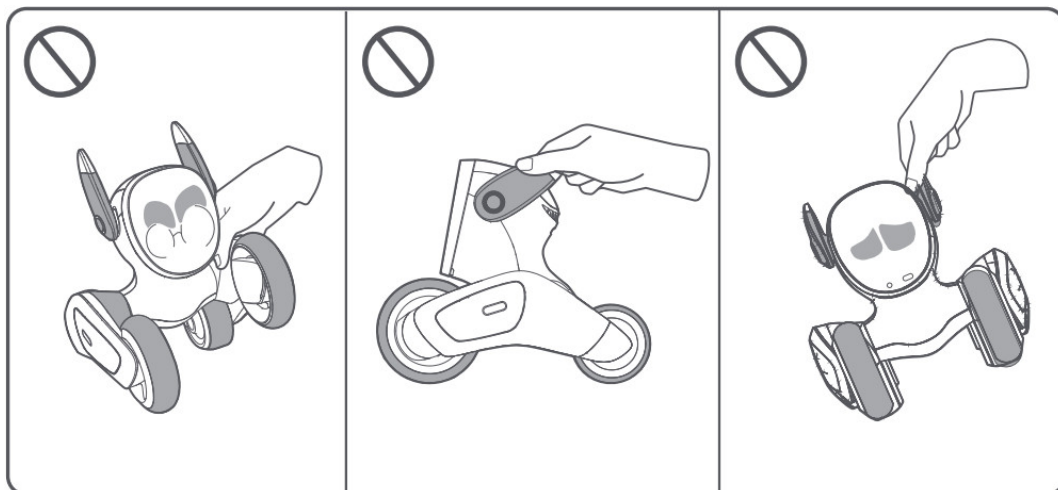
### Charge

Charge Loona under the condition where the ambient temperature is within the range of 10 °C to 40 °C (50°F to 104 °F). It will take around 3 hours to fully charge with a 5V/2A adapter if the battery runs out. If Loona has not been used for an extended period of time, it may take longer to charge the battery. Even if you do not intend to use Loona for an extended period of time, charge the battery every 6 months to keep it from deteriorating.



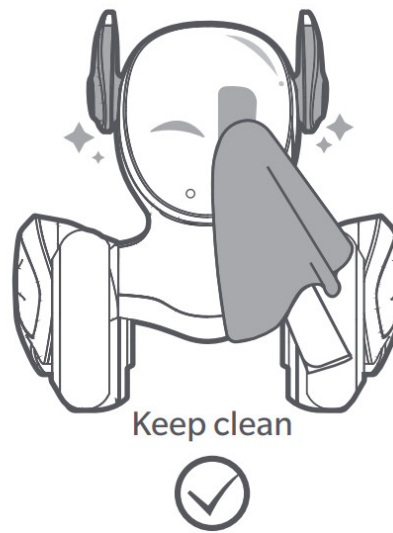
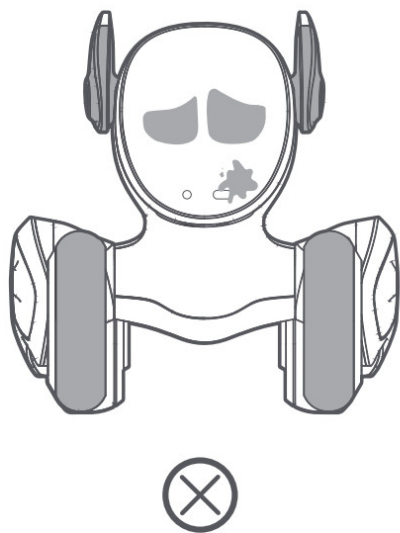
### To avoid injury

Do not put your hands, fingers or exposed skin around Loona's movable parts. Your hands, fingers or skin may get caught between Loona's body and parts, resulting in a physical injury. And do not lift or swing around Loona by grasping its ears and legs, do not forcefully pull and twist any of these aforementioned parts. Moving any of Loona's movable parts beyond its limit may break the part, resulting in a physical damage.



### Maintenance

When Loona or the charging station is soiled with small particles and dust, gently wipe them off with a dry, soft cloth. Protect Loona's RGB camera and 3D-ToF camera from being scratched or soiled with dust and fingerprints. Scratches or stains on cameras can cause Loona's detection capabilities to deteriorate. If dust or fingerprints are found on Loona's cameras, blow them off with a blower and wipe them off with a soft cloth.



## Regulatory Certification

Provides detailed regulatory certification information.

### Data Security

We understand the importance of personal data security, and will make every effort to protect the personal information of our users. We will take all reasonable and practical means to avoid collecting irrelevant personal information. If it is necessary for us to do so, we will first obtain your authorization to use your personal information and store this on a local hard drive in accordance with relevant professional standards.

Loona uses a data encryption chip to protect user data and user privacy at the hardware level to ensure the local data security. Loona uses web services supported by Amazon, supporting more security standards and compliance certifications than any other offering, including COPPA, PCI-DSS, HIPAA/HITECH, FedRAMP, GDPR, FIPS 140-2, and NIST 800-171. It satisfies compliance requirements for virtually every regulatory agency around the globe.

### Certification



This device complies with part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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

**NOTE:** 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 equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

FCC ID: 2AWR5-KY004LN01



RSS-Gen Issue 4 December 2014" & "CNR-Gen 4e Décembre 2014: –English:  
This device complies with Industry Canada licence- exempt RSS standard(s).  
Operation is subject to the following two conditions:

1. This device may not cause interference, and
2. This device must accept any interference, including interference that may cause undesired operation of the device.



Manufacturer's Name: Beijing Ke Yi Technology Co., Ltd.

Address: 8th Floor, Dimeng Building, Huayuan Road, Haidian District, Beijing

Product Name: Loona smart toy

Trade Mark: Loona

Model number: KY004LN01

Operating Temperature: 10° C to 40° C

This device is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU. All essential radio test suites have been carried out.

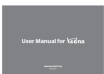
Detailed DOC file please visit our website: [www.keyirobot.com](http://www.keyirobot.com).

The device complies with RF specifications when the device used at 20cm from your body. Care for the environment! Must not be discarded with household waste.

RF Specification:

Function	Operation Frequency	Max RF output power	Limit
WIFI 2.4G (802.11b/g/N20)	802.11b/g/n20: 2412~2472MHz	15.04 dBm	20 dBm.
Wi-Fi 5.2G(802.11a/n20)	802.11a/n20: 5180-5240MHz	11.86dBm	23 dBm.
Wi-Fi 5.3G(802.11a/n20)	802.11a/n20: 5260~5320MHz	11.56 dBm	20 dBm.
Wi-Fi 5.6G(802.11a/n20)	802.11a/n20: 5500~5700MHz	12.05dBm	20 dBm.
Wi-Fi 5.8G(802.11a/n20)	802.11a/n20:5745-5825 MHz	11.81 dBm	13.98 dBm.

## Documents / Resources

	<a href="#">Loona KY004LN01 Smart Toy Robot</a> [pdf] User Manual KY004LN01, 2AWR5-KY004LN01, 2AWR5KY004LN01, KY004LN01 Smart Toy Robot, Smart Toy Robot, Toy Robot
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## References

- [KEYi Tech Loona Petbot | ClicBot | AI Robot](#)