

6



Who is Pepper

7



Overview

8



What's in the box

9



Unboxing Pepper

11



Pins

12



Charging Pepper

13



Moving Pepper

13



Choosing the environment

14



Turning Pepper ON

15



Interacting with Pepper

16



Operating Pepper

17



Turning Pepper OFF

17



Using the Stop Button

18



Taking care of Pepper

19



Reboxing Pepper

21



Safety

25



Technical information

26



Support

Please read this document carefully before using Pepper (hereinafter referred to as “Pepper”, “the robot” or “he”). Keep this document after reading for future reference. This robot is a device that moves on its own, mishandling can lead to accidents or injury.

The latest version of this document is available online at:

www.softbankrobotics.com/support

IMPORTANT: It is strongly recommended that people handling the robot follow these guidelines and the safety guidelines for their personal safety. **NOT DOING SO MAY LEAD YOU TO VOID THE WARRANTY OF PEPPER OR THE BATTERY CHARGER.** The guidelines will help you protect the robot, the battery charger and their working environment from damage.

This documentation also covers disposal, recycling, and technical information but does not cover all possible conditions that may occur.

At all times, remember that safety to Humans always comes first, safety to Robots always comes second. Always follow installation and service instructions closely, and store them for safekeeping.

Pepper is not intended for use by children, or any person with reduced physical, emotional, sensory or mental capabilities, or lack of experience and knowledge unless either:

* children under 14 years old are supervised by a person responsible for their safety, and who has read and understood the instructions.

OR

* children 14 years old and above have been given instructions concerning its use in a safe way and understand the hazards involved.

Other children should be suitably supervised to ensure that they do not play with Pepper.



Who is Pepper

Introduced in 2014, Pepper is the world's first social humanoid robot, designed to engage and intuitively interact with people.

Attractive

With an optimal size of 120cm (4ft) tall, an eye-catching appearance and humanoid behaviour, Pepper immediately stands out in a crowd, effortlessly attracting undivided attention and creating an emotional connection with people.

Icebreaker

Thanks to his numerous sensors, Pepper detects people in his environment and attracts their attention, initiating interaction by voice or by proactively going towards people to start a conversation.

Customisable

As an advanced programmable platform, Pepper offers infinite possibilities to enrich user experiences allowing him to be deployed in different sectors such as Retail, Banking, Travel, Workspace, Government and Public services, Healthcare and Education.



Easily accepted

Friendly, safe and unprejudiced Pepper always succeeds in making the communication enjoyable and the experience memorable.

Connected

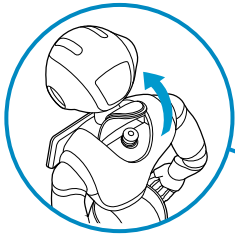
Pepper provides an experience using various cloud services and databases expanding his technical capabilities, such as cognitive computing, real-time communication and data collection, to provide more services.

Enjoy the company of your new friend!

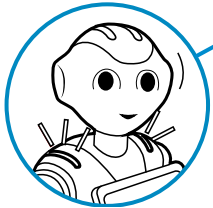


i

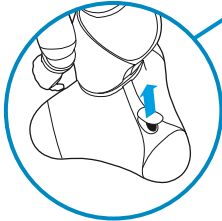
Pepper is available with three different options. The difference does not have any impact on the basic use of the robot.



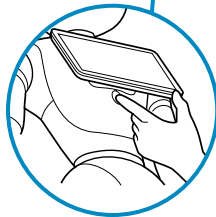
Soft Cover and Stop Button



Shoulder LEDs



Charging Flap



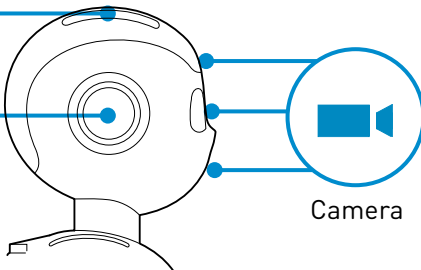
Chest Button



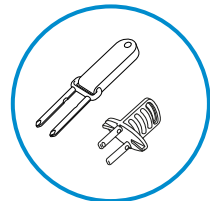
Microphone



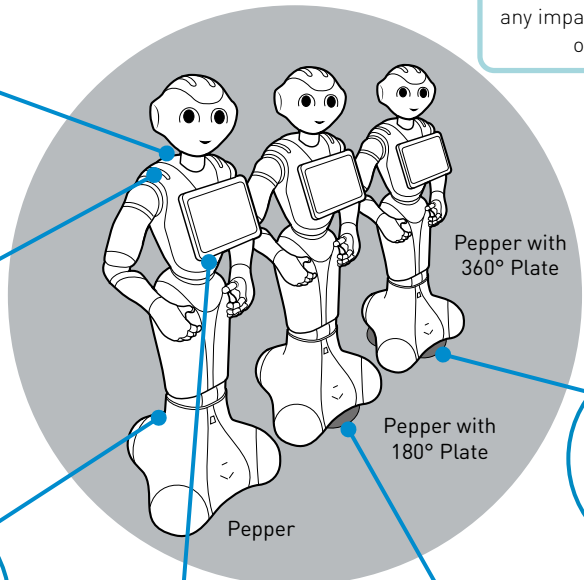
Speaker



Camera



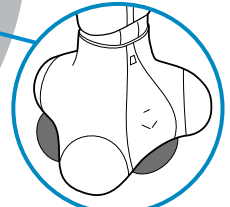
Pins (see p. 11)



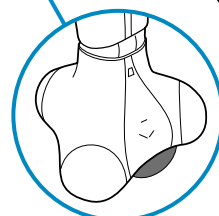
Pepper

Pepper with 360° Plate

Pepper with 180° Plate



360° Plate*



180° Plate*

* optional
The usage of the Plates requires a specific NAOqi version.



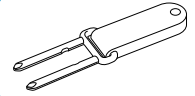
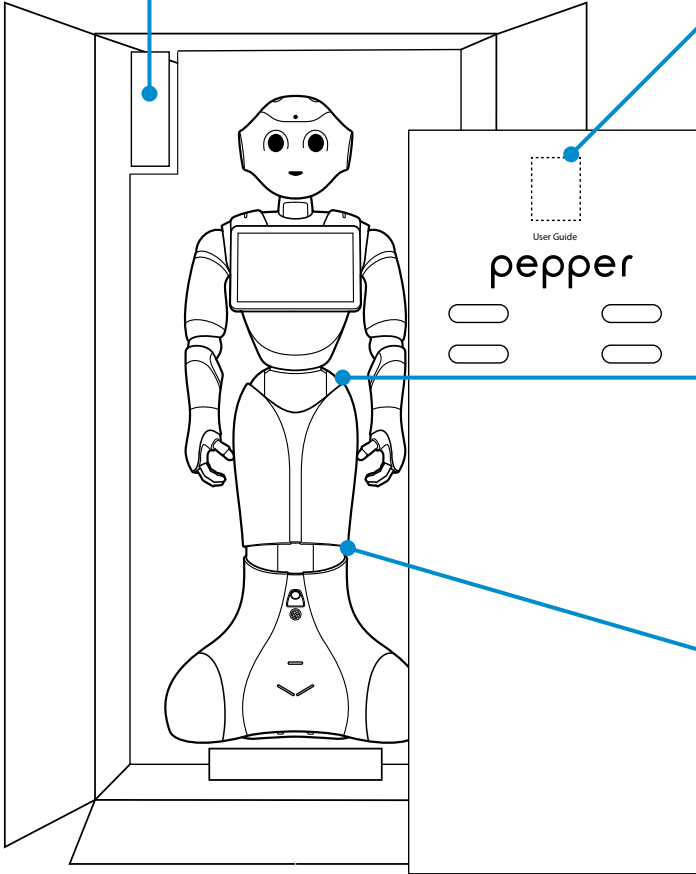
What's in the box



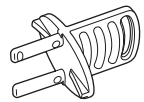
Battery Charger*
with AC cord



User Guide
Certification Leaflet



Hip Pin



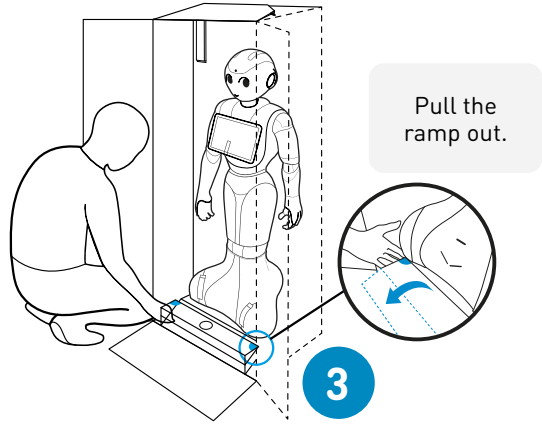
Knee Pin


If something is missing, please contact Support at:
www.softbankrobotics.com/support

* Two battery chargers models available.

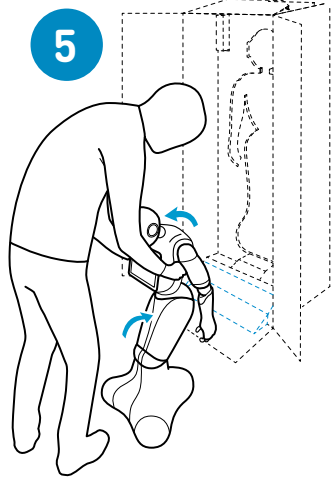
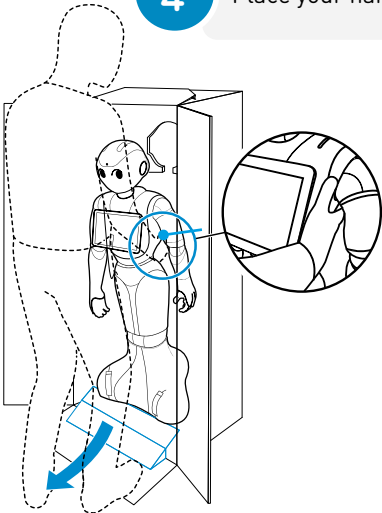


Keep the box and protections. You will need them to store Pepper.



 KG Pepper is heavy! Be careful when handling the robot.

4 Place your hands under Pepper's arms, and slowly lift Pepper out.





Unboxing Pepper



Pepper might be unstable and fall if not put in the right posture.



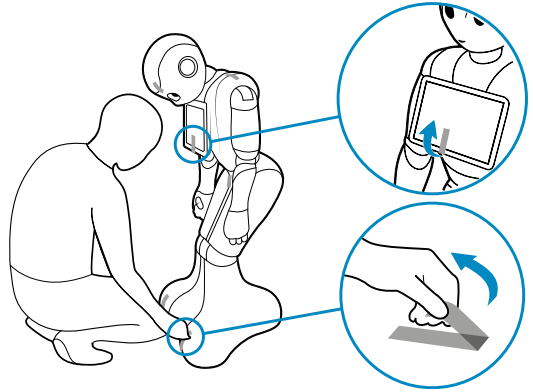
Safe Posture



Wrong posture

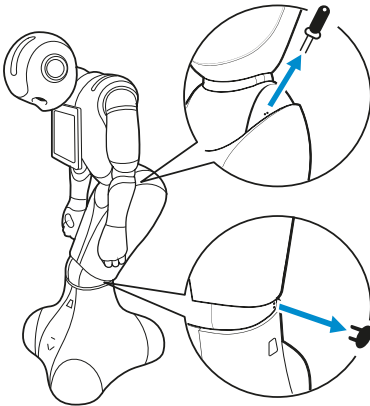
6

Remove the tape and all protections.



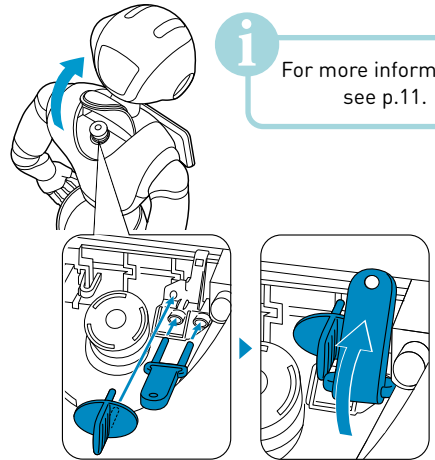
7

Remove the Pins.



8

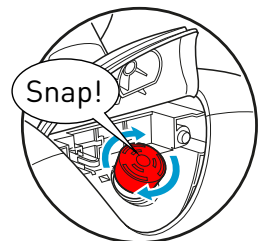
Open the Soft Cover and store the Pins in their respective slots.



For more information, see p.11.

9

Unlock the Stop Button then close the Soft Cover.

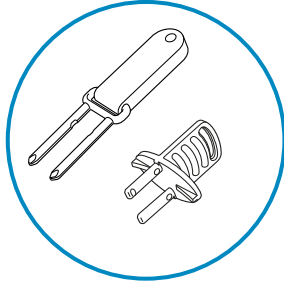




Using the Pins



Do not insert the Pins when Pepper is ON.



Only insert the Pins when:

- cleaning Pepper.
- reboxing Pepper.
- putting Pepper in Safe Posture.

Only when Pepper is OFF:

Pins inserted



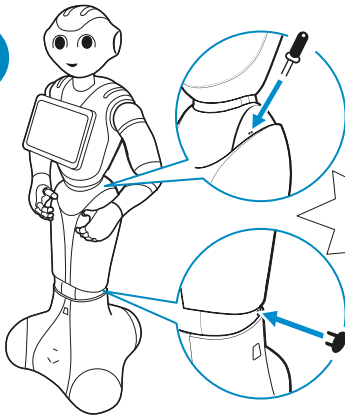
Knee and hip joints move freely.

Pins removed



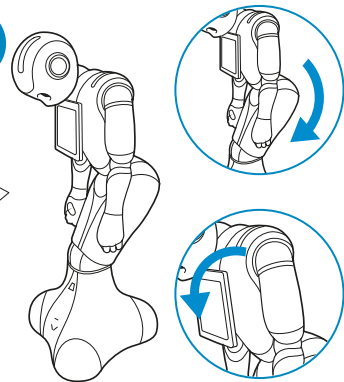
Knee and hip joints are locked.

1



2

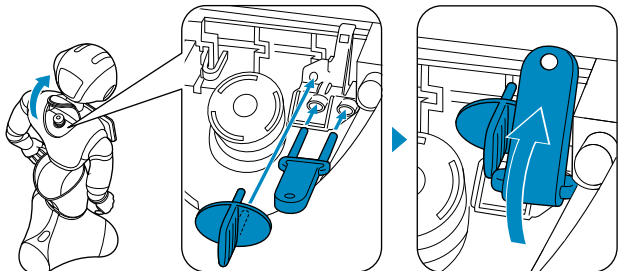
Click!



Storing the Pins

i

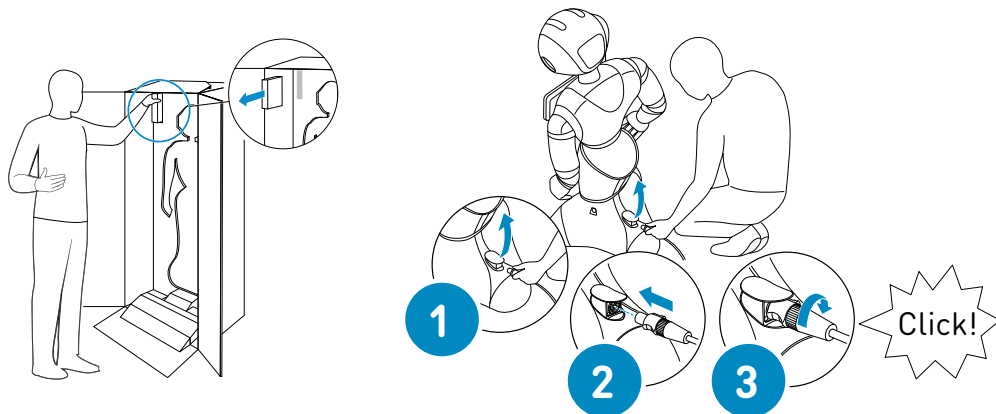
Don't forget to store the Pins after use.



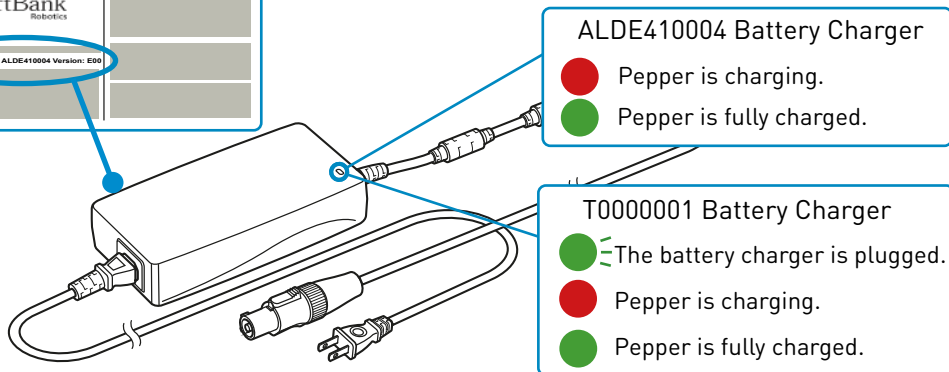


Charging Pepper

Remove the plastic film from the battery charger.



Please note there are two different Battery Chargers. The LEDs behaviour varies with the battery charger model. You can find out the model of the battery charger on the case.



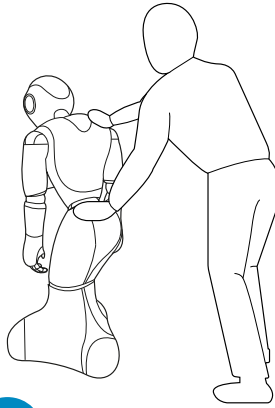
Charging time ~8h

Battery life 7~20h
Depending on use



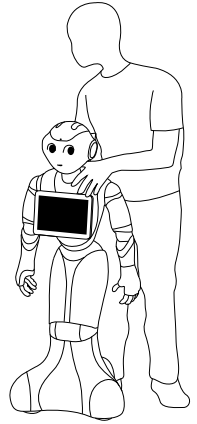
1

Open the Charging Flap to release the brakes.



2

Place one hand on the shoulder and the other on the hip.



3

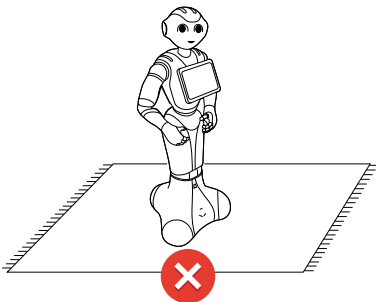
Carefully roll Pepper to his new location.

Ensure the new location complies with Pepper's use conditions.

Choosing the location

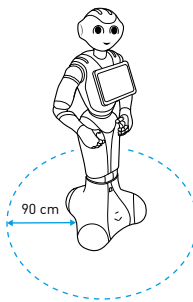


For more information, please refer to Safety (p.21).



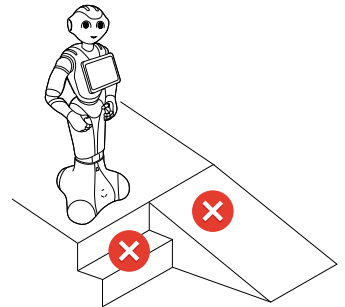
1

Ensure Pepper is on a smooth and flat surface. Avoid carpets or rugs.



2

Ensure there is at least 90 cm (~35.4 inches) around Pepper.



3

Ensure there are no slope or stairs around Pepper.



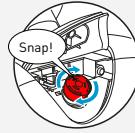
Turning Pepper ON

Turning Pepper ON

1

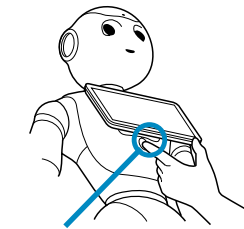
Before turning Pepper ON, ensure:

- the location is appropriate (p.13),
- the Stop Button is unlocked (p.17),
- the Pins are removed (p.11).



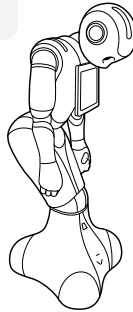
2

Press the Chest Button once and wait.

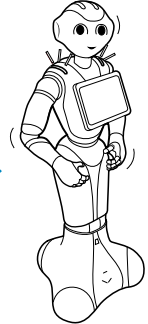


Click!

⌚ ~2 minutes



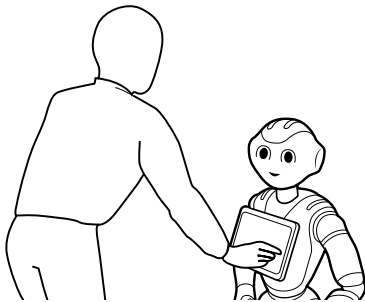
Ognak
Gnuk!



After standing up, Pepper is ON but not ready yet for interaction. He is ready once:

- Pepper has checked his surroundings,
- the eyes are white.

Setting Pepper up for the first time



Follow the procedure on the Tablet to configure Pepper.

i

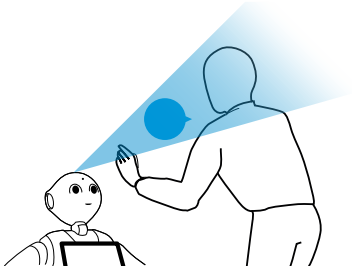
Pepper's configuration can vary according to the software version of the robot.

Once the configuration is done, your Pepper is ready to use!

For more information
(access the parameters, manage the content, develop apps, and more), visit:
www.softbankrobotics.com/support
and your reseller's documentation.



Talking with Pepper



Pepper's hearing area is narrow. Keep eye-contact when interacting with Pepper.

i

Pepper is not able to talk unless the appropriate software is installed (p.14).



Pepper is listening when:

- Pepper looks at you.



- Do not speak at the same time.
- Use short sentences.
- Do not speak too fast!

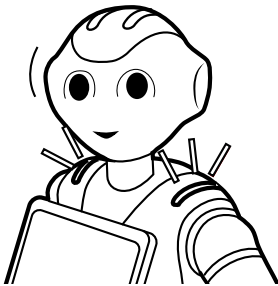
Listening to notifications

i

The Shoulder LEDs notify the user of new information. The color of the notifications indicates the type of information. Notifications disappear once the issue is solved.

1

Check if the Shoulder LEDs are blinking.



Information



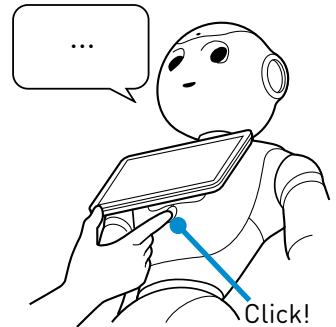
Warning



Error

2

Briefly press the Chest Button once to listen to the notification.



3

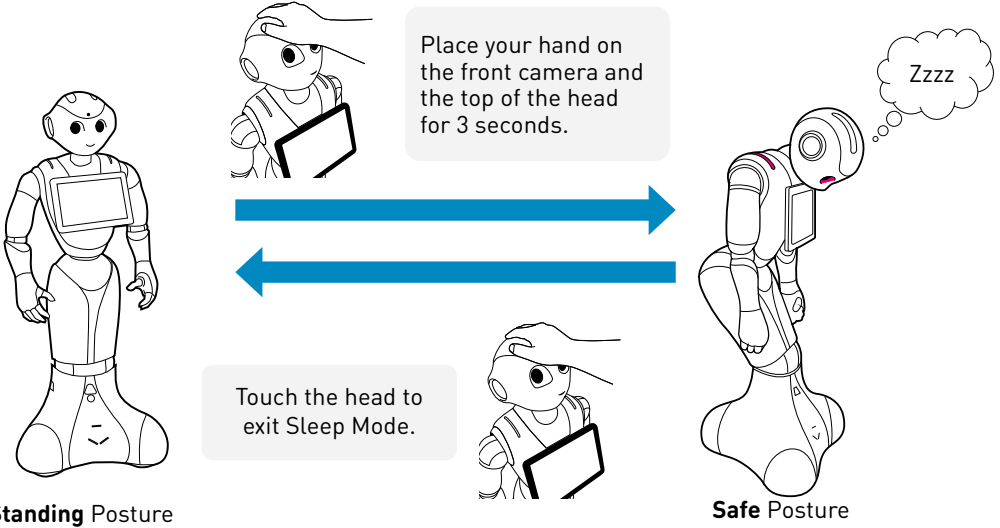
If the Shoulder LEDs are yellow or red, Pepper may have an issue. If needed, contact Support (p.26).



Operating Pepper

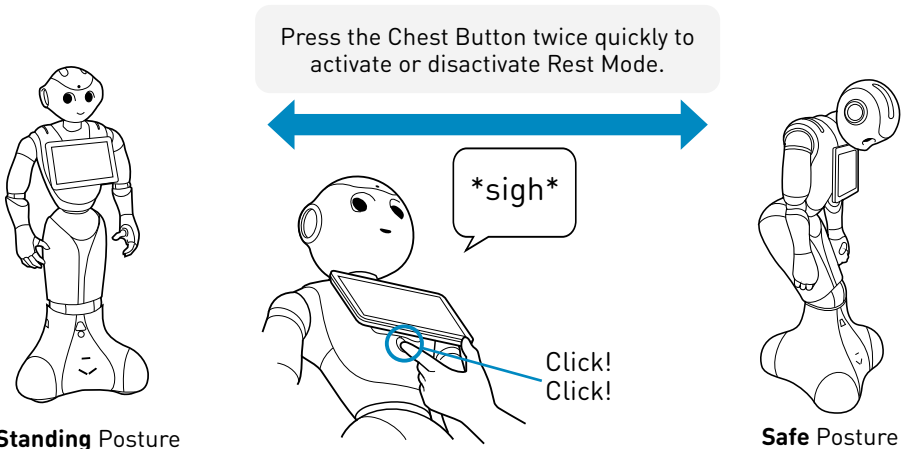
Sleep Mode

In Sleep mode, Pepper does not speak or move around. When touching the head, Pepper will wake up, stand up and look around.



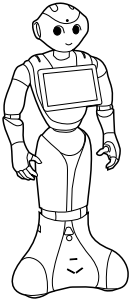
Rest Mode

In Rest Mode, all activities are stopped and all motors are turned off: Pepper will not speak or move.

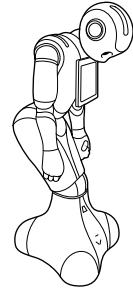
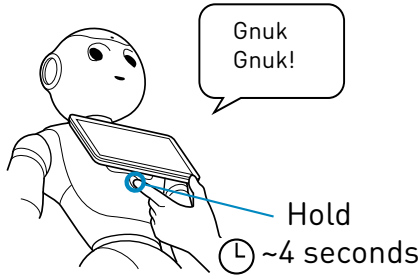




Turning Pepper OFF using the Chest Button



Standing Posture

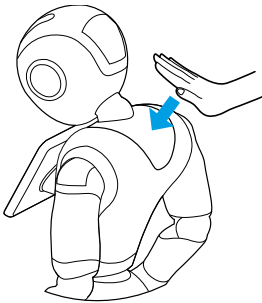


Safe Posture

⌚ ~1 minute

Forced switch OFF: If Pepper doesn't react or doesn't turn OFF normally (as shown above), press the Chest Button until Pepper turns OFF.

Turning Pepper OFF using the Stop Button



For security:

- When Pepper is turned OFF
- When Pepper is in his box and/or stored
- When cleaning

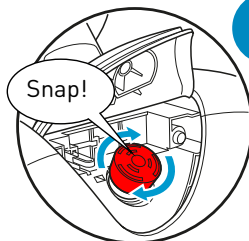
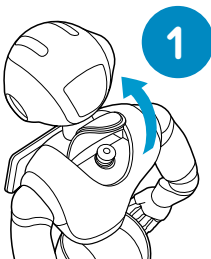


In case of emergency when Pepper is ON, for example:

- Liquid spill
- Pepper has fallen
- Unexpected physical behaviour

You can push the Stop Button through the Soft Cover.

Unlocking the Stop Button



If the Stop Button is pushed down, unlock it before turning Pepper ON then carefully close the soft cover.

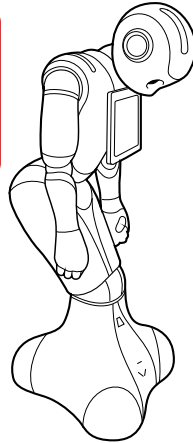


Taking care of and storing Pepper

Cleaning Pepper



Make sure Pepper is turned OFF and unplugged, and that the Stop Button is pushed down when cleaning.



Use a soft dry cloth or cleaning wipes.



Do not use water.



Do not use alcohol or ammonia-based products.

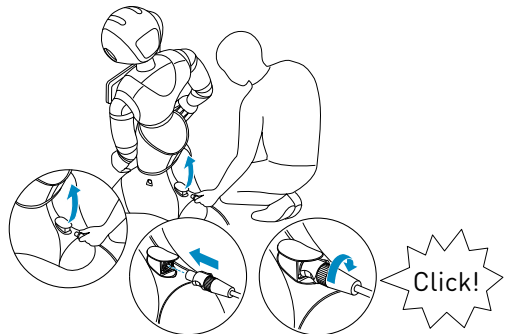
Storing Pepper

If you still have the box, use it to store Pepper.

1. Turn Pepper OFF.
2. Press the Stop Button.
3. Fully charge Pepper.
4. DO NOT insert the Pins otherwise Pepper might fall.
5. Ensure the storage location complies with safety recommendations (see Safety p.21).

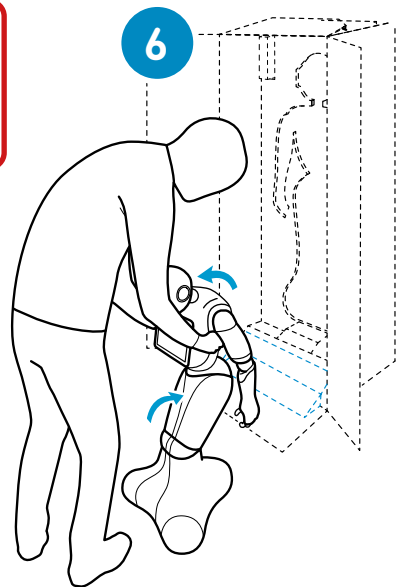
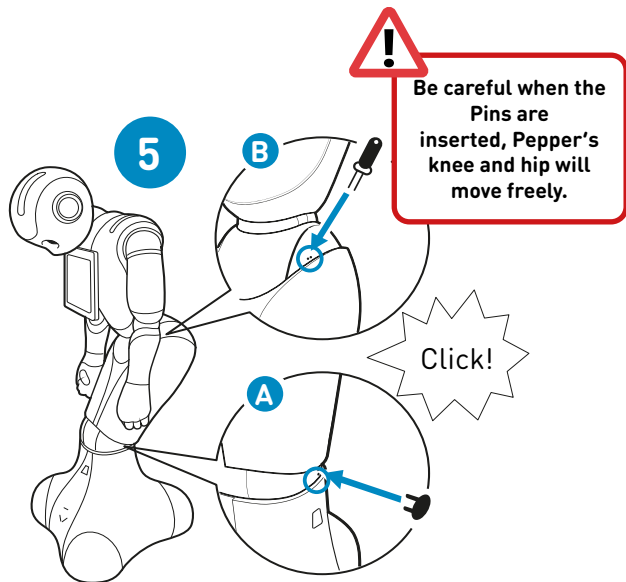
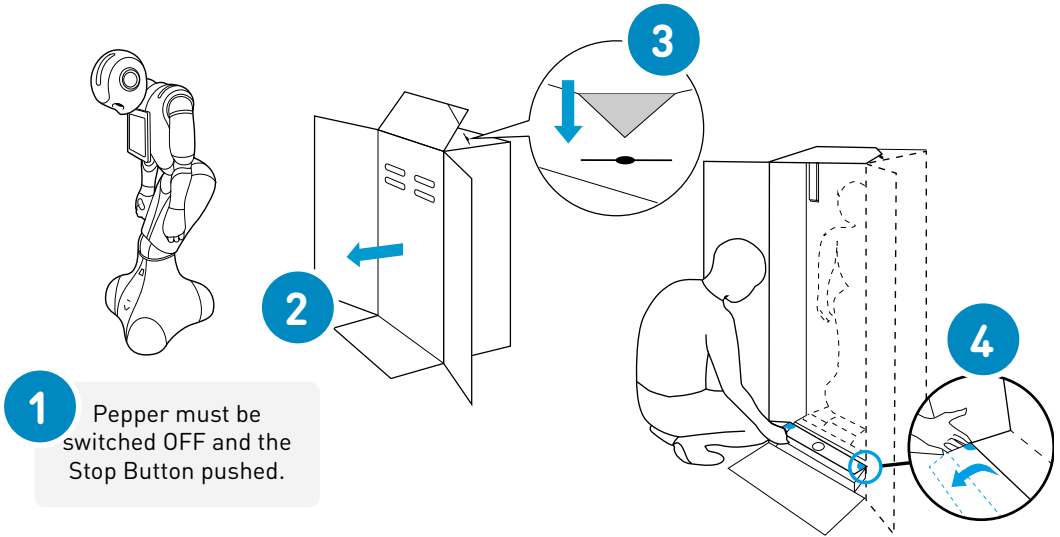


For long storage, charge Pepper at least once every three months otherwise the battery will become unusable.





Putting Pepper in the box

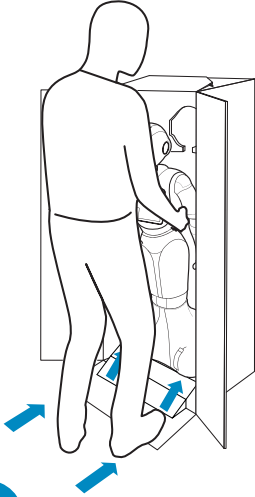


Remove the Pins from their storage and insert them in their respective slots.

Bring Pepper in front of the box, and make sure the Charging Flap is closed.

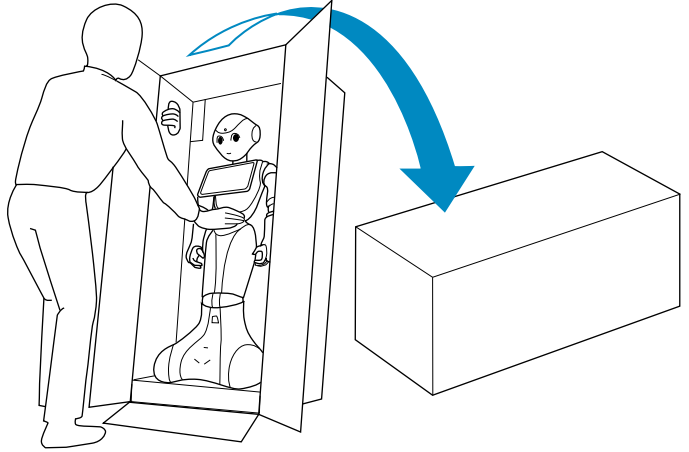


Reboxing Pepper



7

Lift Pepper to the Standing Posture while pushing him into the box.



8

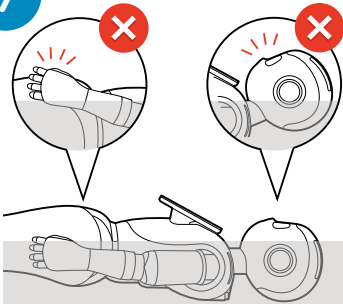
Carefully bring the box to the floor.



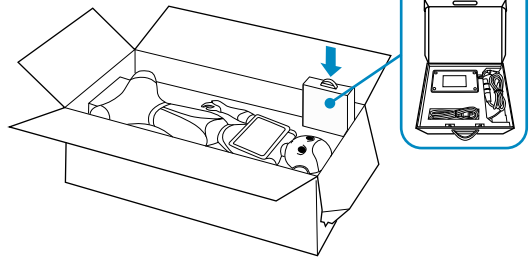
Be careful, Pepper could be unstable.

Adjusting Pepper in his box

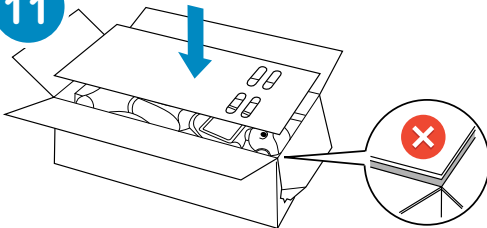
9



10

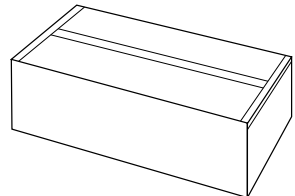


11



12

Close the box with strong tape.





IMPORTANT: It is strongly recommended that users follow these safety guidelines for their personal safety, not doing so may lead to void the warranty of Pepper or the battery charger.

General

This Pocket Guide and the accompanying certification leaflet are provided in the box with Pepper. They have important and regulatory information.

These documents must be kept with Pepper during the entire robot's life.

The guidelines will help you protect the robot, the battery charger and their working environment from damage. Always follow installation and service instructions closely.

At all times remember that safety to human beings always comes first.

The documentation also covers disposal and recycling information.

These safety instructions do not cover all possible situations that may occur. When in doubt, contact SoftBank Robotics Support: www.softbankrobotics.com/support

Never attempt to service the robot yourself and/or its power supply (including disassembling and removing the casing). Spare parts are not sold.

Turn off Pepper, unplug the battery charger and contact Support in any of the following cases:

- The power cord or the charger is worn.
- The charger has been damaged.
- There is mechanical damage to Pepper.
- Liquid has gone inside Pepper's casing.
- There is smoke or an unusual smell coming from Pepper.
- Pepper does not seem to work properly.

Location

Pepper is designed for indoor use only. Do not use the robot outside.

Pepper's operating humidity range must not exceed 80%.

Supervision

Pepper is not intended for use by children, or by people with reduced physical, sensory or mental capabilities, or lack of experience and knowledge.

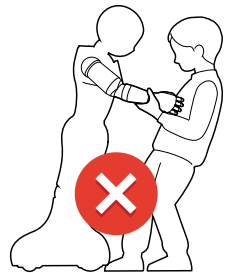
Children under 14 years old must be supervised by a person responsible for the child's safety and who has read and understood these instructions.

Children 14 years old and over must be given instructions concerning the use of the robot in a safe way and understand the hazards involved.

Keep packing material away from children.

In a public environment, the robot must not be within reach of children. Do not leave the robot with children, even when switched off.

The robot is heavy! If a child destabilizes Pepper, it could fall and hurt him.





Safety Information

Fire Hazard

Pepper contains some electrical and internal units which can be hot during normal use.

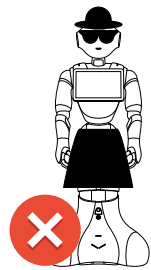
To avoid risk of fire, take the following precautions:

- The user is responsible for having an electrical installation that complies with local standards.
- Use only the power cord supplied by SoftBank Robotics with Pepper.
- Do not use the battery charger and/or power cable if they show signs of damage or excessive wear.
- Do not use the power cord with other products.
- Do not insert anything in Pepper's casing.
- Take care not to spill any liquid on Pepper. If in doubt, do not use.
- Make sure all components are thoroughly dry before using Pepper again.
- Do not attempt to dry the robot with an external heat source such as a hair dryer.
- Do not use aerosol products that contain flammable gases around Pepper.
- Do not operate Pepper in an explosive atmosphere.
- Pepper's operating temperature must be between 5 °C and 35 °C (41 °F to 95 °F).
- Do not use the battery charger if the room temperature is above 40 °C (104 °F).

Never dress the robot up, that could obstruct Pepper air vents, cover the detection sensors and may prevent the articulations from working correctly.

Do not put anything on the head, including any kind of hat, cap, or wig as they may increase the robot's operating temperature which can lead to an unexpected shutdown or damage the robot.

Do not put any glasses (fake or not), eye patch, on its head, or any kind of clothing accessory whatsoever on the robot.



Mechanical hazard

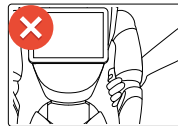
Do not destabilize Pepper, the robot is heavy and could fall and hurt you.



Neck



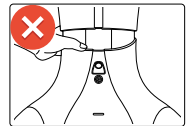
Arm



Elbow



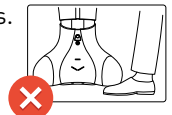
Hip



Knee

Pepper has moving parts that could cause pinching and potentially serious injuries. Take the following precautions when working close to Pepper:

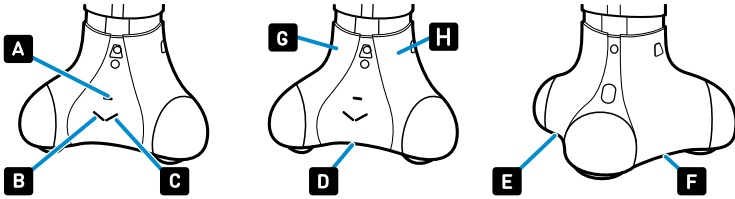
- In normal situations, avoid carrying and touching the robot when it is moving, walking or getting up.
- Do not place your hands on any of the robot's joints, especially as shown in the pictures.
- Do not walk too close to the wheels, as Pepper may run over your toes.
- If Pepper is equipped with the 180° plate or the 360° plate, the robot can move with this optional equipment. Do not walk on the plate and do not place your feet in front of the plate.





Laser and infrared information

- Lasers and infrared sensors help Pepper to interact safely with its environment.
- Warning (class 1M lasers): Invisible laser radiation. Do not view directly with optical instruments (for example eye loupes, magnifiers and microscopes) within a distance of a 100 mm, it can cause permanent eye damage.
- Caution: Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
- There are six embedded class 1M lasers (A to F) and two infrared diodes (G and H).

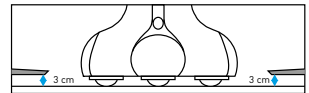
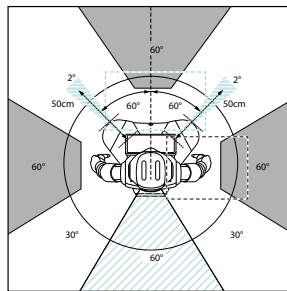
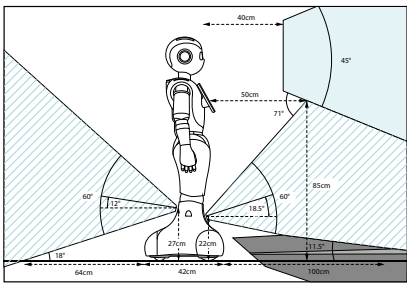


INVISIBLE LASER RADIATION
DO NOT VIEW DIRECTLY WITH OPTICAL
INSTRUMENTS
CLASS 1M LASER PRODUCT

- The class 1M lasers are certified under IEC60825-1:2007 (wavelength: 808 nm; maximum accessible radiant power: <math><9\text{ mW}</math>; pulse duration: <math><15\text{ ms}</math>).
- The infrared diodes are classified in EXEMPT group according to standard IEC62471 edition 1.
- For more information about the lasers, please refer to the chapter entitled "Pepper sensor ranges"

Pepper sensor ranges

Pepper can detect objects around it using various built-in sensors. However there are exceptional areas which Pepper cannot cover. Do not place any object in those areas.



- 3D SENSOR DETECTION ZONE
- SONAR DETECTION ZONES
- INFRARED DETECTION ZONES
- LASER AND SENSOR DETECTION ZONES (HORIZONTAL)
- LASER AND SENSOR DETECTION ZONES (VERTICAL)
- BLIND ZONE

Note: For readability, not all sensor information is shown here.

Environmental hazard

- Pepper and its lithium-ion battery have been designed, manufactured and quality-controlled according to international environmental regulations.
- Please do not dispose of your product in everyday waste.
- In order to protect human health and the environment, we recommend handing over your waste equipment to a designated collection point.



- For more information, please contact your waste disposal service.



Using Pepper near medical devices

IMPORTANT NOTICE FOR USE IN HEALTHCARE ENVIRONMENTS:

SoftBank Robotics products are not medical devices and are not listed under UL or IEC 60601 (or equivalent).

Radio-frequency waves from electronic equipment can negatively affect the operation of other electronic equipment, causing them to malfunction.

The device is designed, tested, and manufactured to comply with regulations governing radio frequency transmission in countries such as the United States, Canada, the European Union, and Japan.

Therefore, please take the following precautions:

Pacemakers:

The Health Industry Manufacturers Association recommends keeping a minimum distance of 15 cm (6 inches) between wireless devices and pacemakers to avoid interference with the pacemaker. Pacemaker users should therefore not carry the robot close to their chest.

If there is any reason to suspect interference, turn the robot off immediately.

Other Medical Devices:

Users of any other personal medical devices should consult the device manufacturer or physician to determine if there are other constraints.

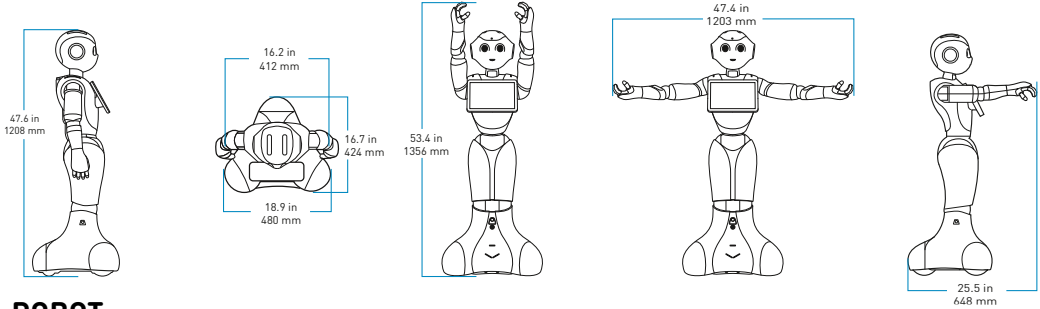
Battery charger and battery

- The battery charger is not waterproof. Keep it dry at all times. Do not use the battery charger if exposed to rain, liquids, or where humidity is saturated such as a bathroom.
- Use caution when touching the battery charger. During charging, the battery charger could be very hot, it is a normal and intended behaviour.
- To reduce risk of damage to electric plug and cord, pull plug rather than cord when disconnecting charger.
- Do not disassemble charger. Never open, modify or attempt to repair the battery charger yourself.
- The battery has a security lock system. Never let the battery completely discharge or your battery will be unusable.
- Ensure you fully charge the battery at least once every three months or within a week if the battery level is low.
- Never disassemble Lithium-Ion batteries.
- If the Lithium-Ion battery is damaged or leaking, contact SoftBank Robotics Support.

Button Cell

This product contains a button cell used to power the real-time clock and retain the product settings. It is designed to last as long as the product.

Service or replacing the button cell should only be performed by a qualified service technician.



ROBOT

Physical information	Robot size	See diagrams
	Packaging size (HxWxL)	1400 x 580 x 580 mm 55.1 x 22.8 x 22.8 in
	Weight	29.6 kg / 65.2 lb
	Weight including packaging	41.4 kg / 91.3 lb
Working environment	Working temperature range	5 °C to 35 °C 41 °F to 95 °F
	Working humidity range	20% to 80%
	IP protection class	IPX0
Storage conditions	Storage temperature range	5 °C to 45 °C 41 °F to 113 °F

BATTERY

Voltage	26.46V typ.	
Capacity	30Ah typ.	
Energy	795 Ah	
Secondary cells	18650 Li-ion cells	
Battery run time	Minimum	7 hours
	Typical	12 hours
	Maximum	20 hours
Robot storage at 25° C	Battery run time loss	20% / year
	Self discharging	3.5% / month
Charging duration (robot off): 0% to 100%	0 to 100%	8h and 20 min

BATTERY CHARGER

Input voltage	100-240V AC / 50-60Hz
Output voltage	28.6V
Output current	8A max
Working temperature range	5° C to 35° C



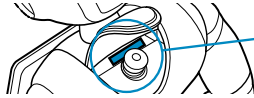
If Pepper has an issue

If you have an issue with your robot, check the following points before contacting Support:

- Is the Stop Button unlocked?
- Is the battery charged?
- Have you turned Pepper OFF and ON again?

If Pepper still doesn't work:

1. Get your robot's Serial Number.



Text & Numbers
AP99XXXXXXXXXXXX
XXXXXXXXXX

2. Contact Support.

www.softbankrobotics.com/support



SoftBank Robotics Europe
Paris, France

SoftBank Robotics America
San Francisco, California, USA
Boston, Massachusetts, USA

SoftBank Robotics China Corp
Shanghai, China

SoftBank Robotics Corp
Tokyo, Japan

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SoftBank Robotics Europe - 43 rue du Colonel Pierre Avia - 75015 Paris - France
RCS Paris 483 185 807 - SAS au capital de 8 627 260

