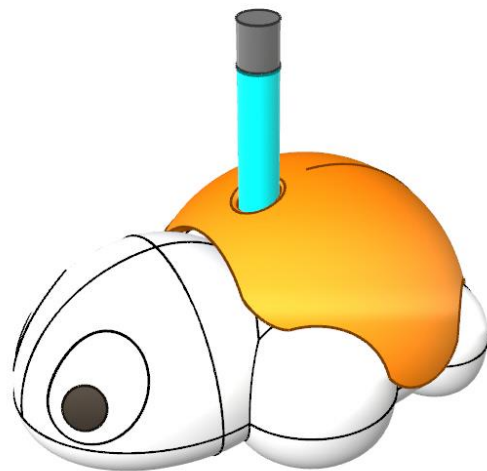


2017

# Turtle User's Manual



**Version 1.0**

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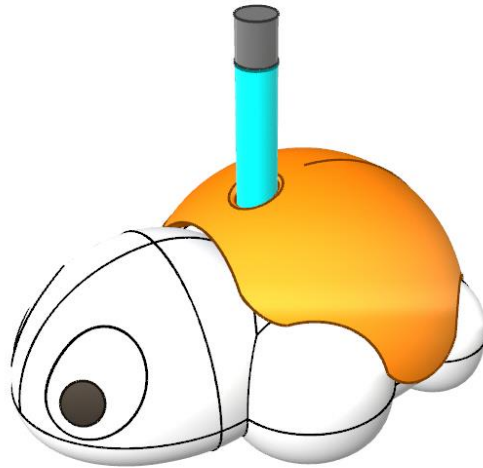
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# 1. Introduction to Turtle Robot

## 1.1. product overview

"Turtle" Robot can be directly connected to smartphones by bluetooth 4.0 BLE.

- smart device compatibility: Android 4.4 or higher / iOS
- a network-based thin-client robot (Roboid) operating in IoT environment.



## 1.2 How to use

- Turning on: Set the power switch on the belly button to the ON position.
- Standby mode: blue bluetooth communication LED on the nose is on.
- Connection / communication mode: The communication LED blinks rapidly when packet transmission starts.
- When the app is terminated or the bluetooth connection is shut down by force, it automatically goes into standby mode.
- To charge the robot, connect the microUSB cable used for smartphone charging. When charging, the red LED in the tail is turned on and when the battery is fully charged in about 30 minutes the red LED gets turned off (For faster charging, turn OFF the power switch.)
- When charging is required, the red LED on the tail blinks.

## 2. Turtle Robot Tech Specs

| Item                          | Contents  | Detail  |
|-------------------------------|---|---|
| <b>Size</b>                   | 95 x 76 x 50 mm   | length x width x height   |
| <b>weight</b>                 | 100 grams   | weight of the robot (without decoration)  |
| <b>communication</b>          | smart device connection – Bluetooth4.0<br>BLE   | Connection range 5m or less   |
| <b>wireless frequency</b>     | 2402 MHZ ~ 2480 MHZ   | Bluetooth 4.0   |
| <b>wireless connection OS</b> | Android 4.4 or higher, iOS  | iPhone 5 or higher  |
| <b>battery</b>                | Li-poly, 3.7 volt, 470mA  | Continuous operation time: 1 hour on average<br>Continuous standby time: Up to 12 hours |
|                               | Built-in overcharge protection circuit (PCM)  | Charging time: 30 minutes   |
| <b>Display</b>                | Head LED(RGB)   | Full colors(3 x 8bits)  |
|                               | charging mode(red),   | Super bright  |
| <b>response speed</b>         | Sensor detection: Up to 25 times / second (20msec)<br>Motor control: Up to 25 times / second (20msec) | 30 msec cycle   |
| <b>driving device</b>         | Bipolar Stepping Motor x 2  | Bevel Gear  |
| <b>sound generation*</b>      | 1.00Hz ~ 165.00kHz, monotone  | frequency designation in unites of 0.01 Hz  |

|                          |  |   |
|--------------------------|--|---|
| <b>pitch generation*</b> | 88 key, A3 ~ A7, 12 equal temperament            | precision +/-0.1 cent                           |
| <b>color sensor</b>      | R, G, B, C (16bits)                              | 6 per second                                    |
| <b>etc</b>               | Battery voltage, radio signal strength detection | Visible when connecting to smart device         |
| <b>expansion</b>         | Micro-USB charging port                          | compatible with 5 pin, smartphone charging port |
| <b>power management</b>  | slider switch                                    | power ON/OFF                                    |

FCC ID : 2AK2Q-TURTLE

Model Name : Turtle

Company name : Robomation Inc.

Device name : lower power wireless device (wireless device for wireless data communications)

Manufacturer (Country of manufacture) : Robomation Inc. (Republic of Korea)

Date of manufacture : indicated separately

※ This wireless device has a possibility of causing electromagnetic wave interferences.

Service guide

AS inquiry E-mail : robomation@hanmail.net As inquiry phone

number: 070-8637-1651

Manufacturer website : robomation.net

**Warning** : This equipment may generate or use radio frequency energy. Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved in the instruction manual. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

FCC (Federal Communications Commission)

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.

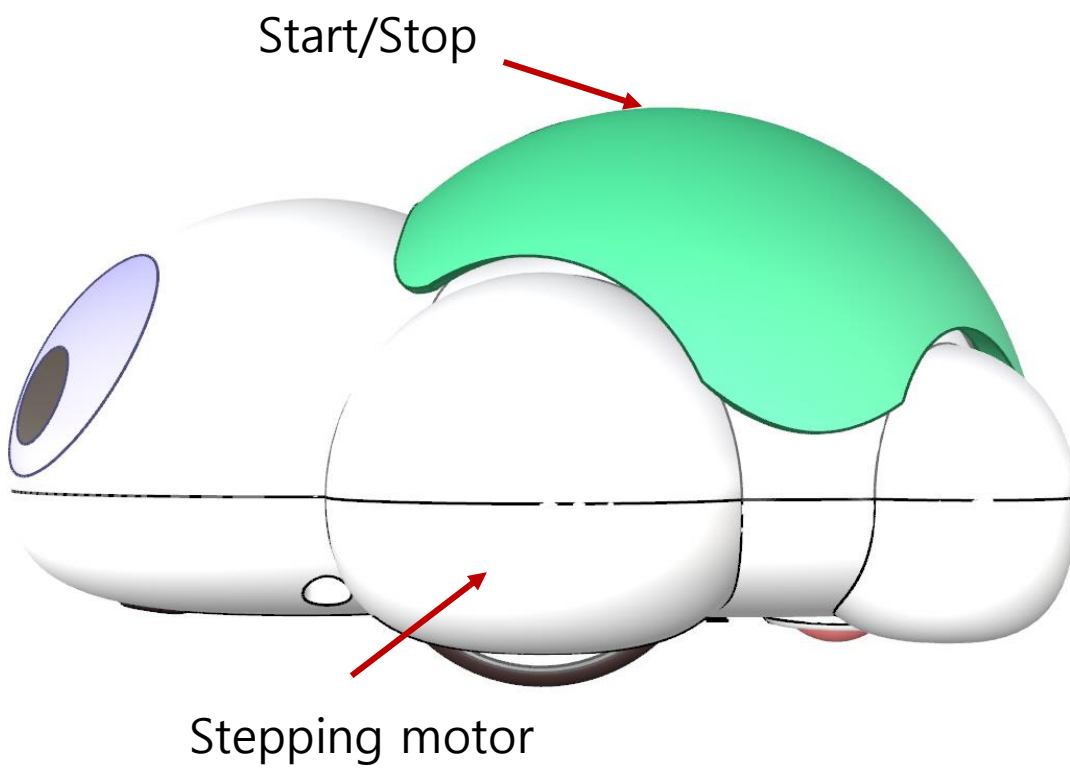
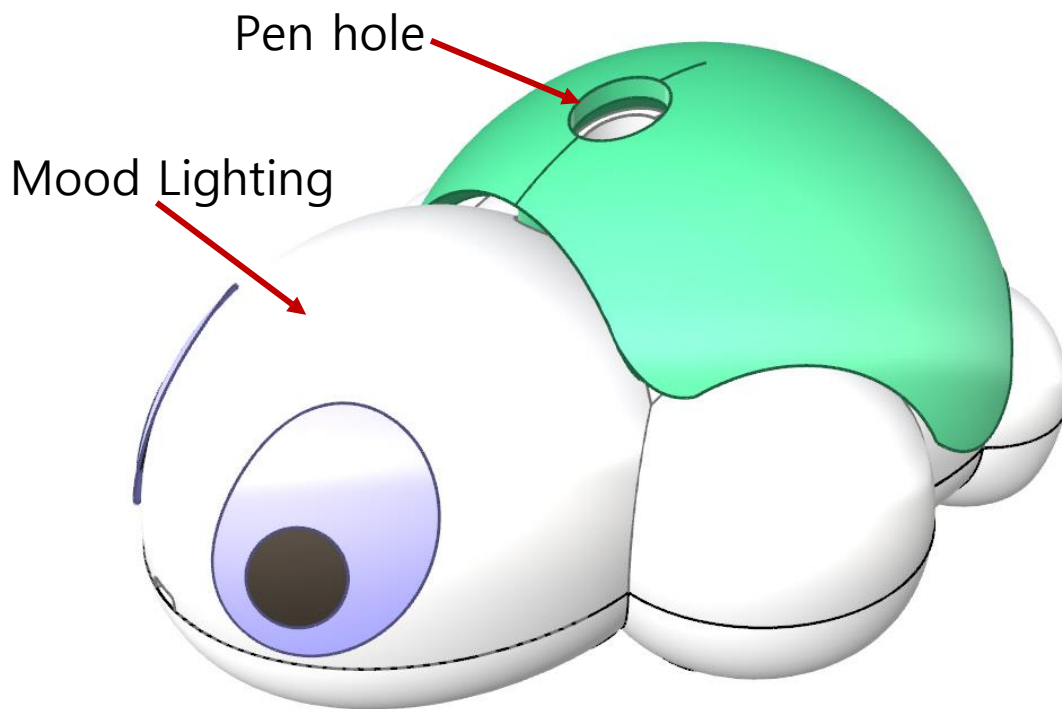
If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- 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.

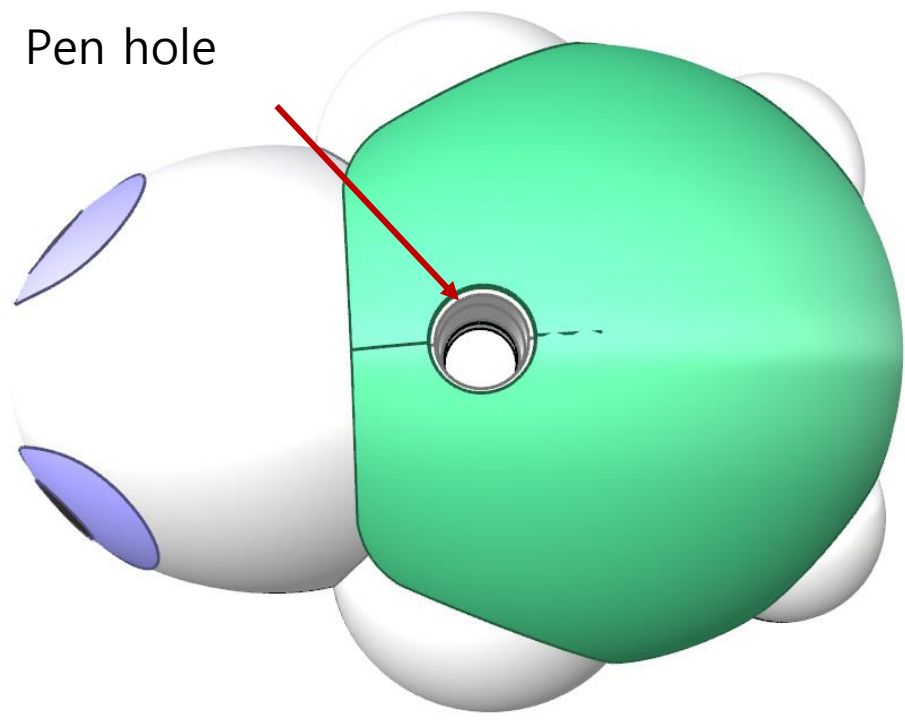
This device complies with part 15 of FCC rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

## Anatomy of Turtle Robot



Pen hole



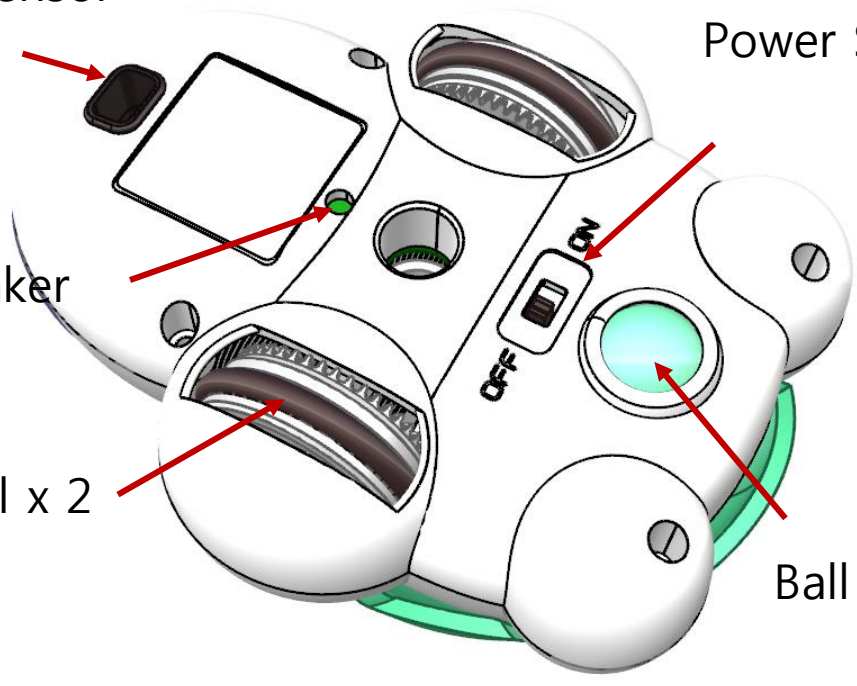
Color Sensor

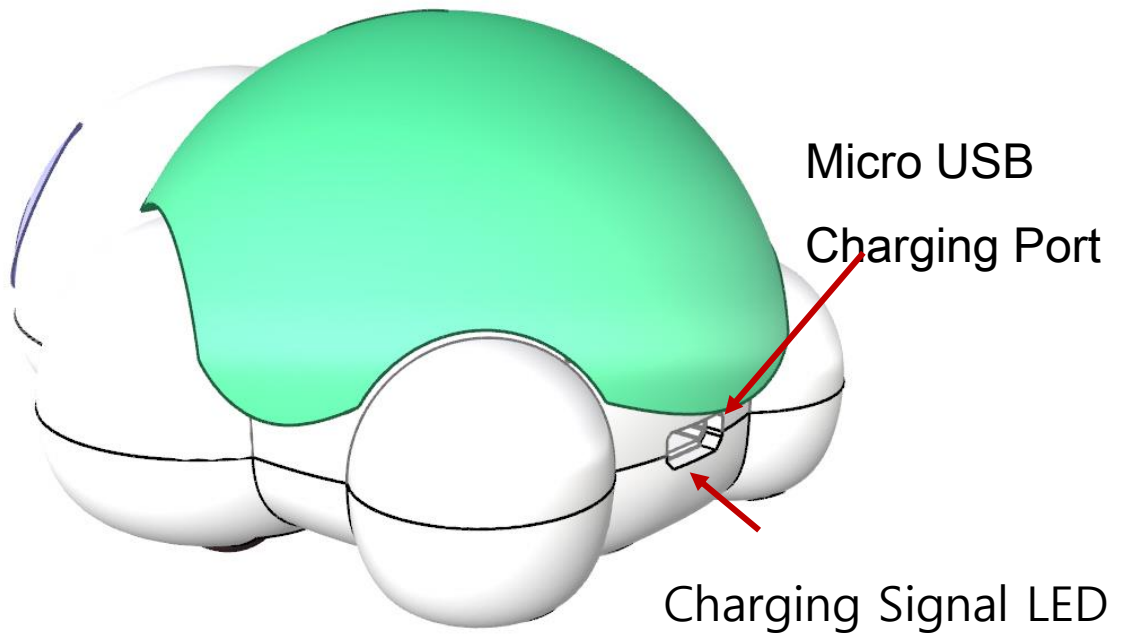
Power Switch

Piezo speaker

wheel x 2

Ball Cast





Micro USB  
Charging Port

Charging Signal LED