6 Charge Battery

The Self-Balancing Robot is powered by three lithium batteries, when the power is less than 10V, the LED4 on the DE10-Nano board will light up, that indicates the batteries need to be recharged.

Please use the lithium battery charger (that is shipped with the robot) to charge the battery. During the charging, the LED on the lithium battery charger will light red; once it is fully be charged, the LED will light green. If lithium battery starts charging when it is completely unable to supply the robot, it is expected to take up to 2 hours to fully be charged.

⚠️ **Attention!! Please DON'T use a non-lithium battery charger to charge the battery.**

7 Download System CD

Users can download the latest system CD from:
http://bal.terasic.com/cd

8 Learning more

For more detailed information about making the Self-Balancing Robot working, please refer to
Self-Balancing Robot_Getting_Started_Guide.pdf.

Contents

If you encounter any problems, please contact us via

www.terasic.com

✉ Email: support@terasic.com ☎ Tel: +886-3-575-0880

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For more information, please visit: http://bal.terasic.com
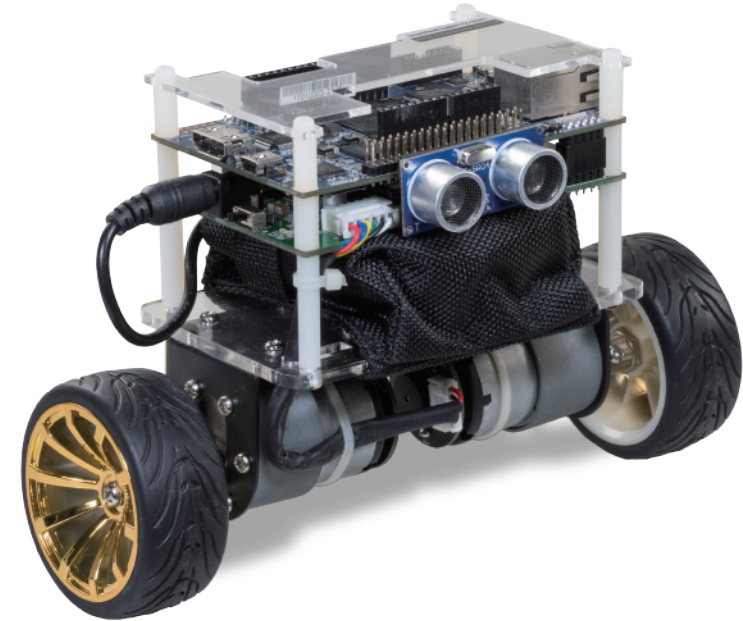
1 What's in the Box?

1. A Self-Balancing Robot
2. Lithium Battery
3. Lithium Battery Charger
4. IR Remote Control
5. Mini USB Cable
6. Micro USB Cable
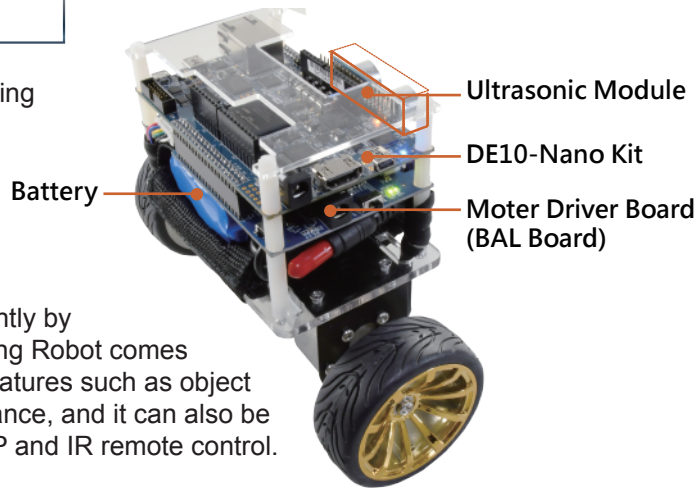7. Quick Start Guide

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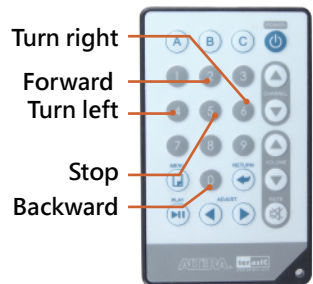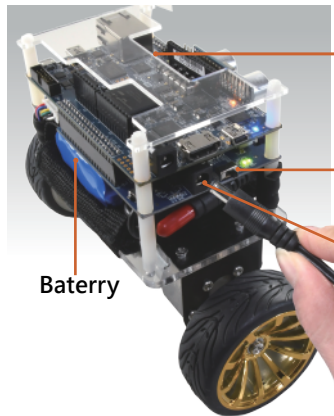✉ Email: support@terasic.com.cn ☎ Tel: +886-3-5750-880

2 Overview

The Terasic's Self-Balancing Robot is a DE10-Nano based platform, it integrates BAL board (motor driver board), ultrasonic module, and it is designed and manufactured independently by Terasic. The Self-Balancing Robot comes with multiple advanced features such as object following, obstacle avoidance, and it can also be controlled by Android APP and IR remote control.

Ultrasonic Module

Battery

DE10-Nano Kit

Moter Driver Board (BAL Board)

3 Perform Power-on Test

Baterry

LED7

Power switch (SW1)

Power input Jack (J5)

Turn right
Forward
Turn left
Stop
Backward

1. Set the power switch (SW1) of the motor driver board to OFF position.

2. Install the Lithium batteries into the battery package.

3. Insert the output plug of battery power into the J5 interface of the motor driver board.

4. Place the Self-Balancing Robot on the plane, keep the robot on a horizontal state, then set the power switch (SW1) to ON position.

5. When the LED7 on the DE10-Nano board lights up, release the e Self-Balancing Robot, the robot will keep balance automatically.

6. Use the IR remote control to control the Self-Balancing Robot.

4 Android APP Control (Bluetooth Remote Control)

The Self-Balancing Robot system CD also includes a Bluetooth remote control demo code.

Users can remote control the Self-Balancing Robot by any Android mobile via Bluetooth.
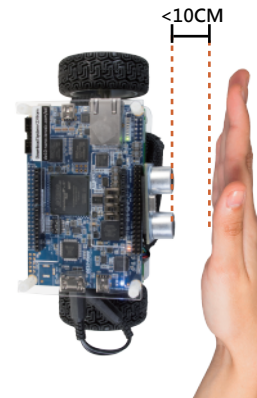
Users can download and install the Android application by scanning the QR code with any Android mobile, then can remote control the robot via the Bluetooth device.

5 Obstacle Avoidance and Object Following

When set the SW0 to Down position and set the SW1 to Up position, if the ultrasonic sensor detects the obstacle is in front of the robot and the distance is within 10cm, the robot will stop automatically.

When set the SW0 to UP position and set the SW1 to Down position, if the ultrasonic sensor detects the obstacle is in front of the robot and the distance is within 10cm, the robot will automatically move backward to avoiding the obstacle; when an object is in front of the ultrasonic module and move slowly and the distance is in 10cm~20cm, the robot will follow the object to move forward.

Obstacle Avoidance

<10CM

Object Following

10CM~20CM