- Thank you for your purchasing **Robstep-M1**
- **Robstep-M1** is an intelligent robot that balances automatically product.
- **This User Manual** providing you information about how to assemble and use **Robstep-M1** safely, and how to maintain it . If you want to get the most pleasure of riding **Robstep-M1** , please read it carefully.
- It is very important for you to know all safety notices and precautions before your first riding, then operating as required.

Robstep

M1 Product Manual

WARNING

- **To avoid the possibility of losing control, collision or falling, we insist that all customers should learn how to use Robstep-M1 securely and safely.**
- **This Product Manual provides you all information about safety video and road senses.**
- **It is recommended that all consumers should follow the instructions mentioned in the Product Manual, otherwise, consumers should take full responsibility for all consequences.** Dongguan Robstep Robot Co.,Ltd **will not liable for accident caused above and will reserve the right to the legal responsibility.**
- **For further related service support, please refer to official website :(www.robstep.com)**

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1. Document overview

1.1 Document overview

- Introduction of **Robstep M1(**Hereinafter referred to as the M1) main function and specification;
- Description about safety and warning information;
- Introduction of every parts for **M1**;
- Procedures about assembling **M1**;
- Precautions about safe driving;
- Driving skills.

1.2 Product Manual

Product Manual will help you assemble and install **M1** correctly and efficiently, please read the user manual for further information.

- Driving tutorial video and the user Manual in PDF format. You may download them from official website **www.robstep.com.** To avoid danger, please make sure that you follow all instructions provided from the video.
- Product manual is in PDF format, please use Adobe Reader to open the file.

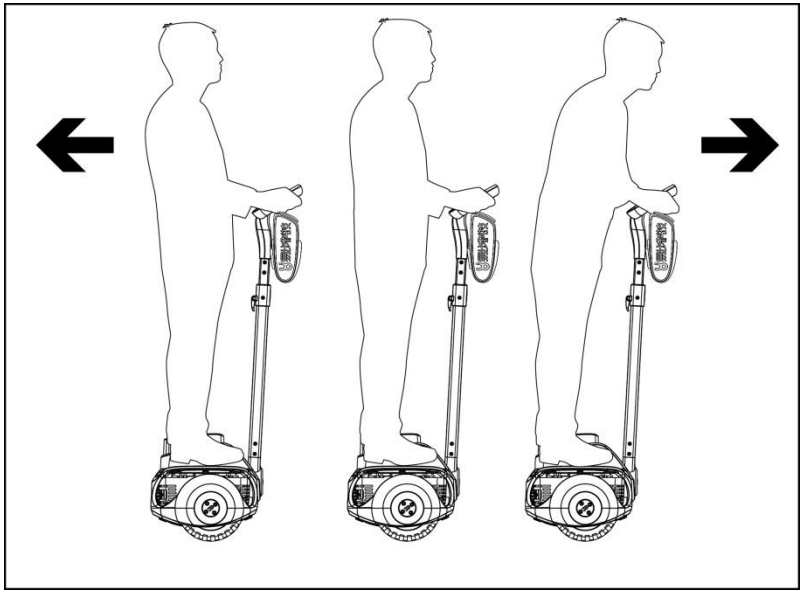
1.3 Related directions

WARNING	**Warning: Any misfeasance could increase the risk of physical damage**

NOTE:	Note : Precautions and use-method that should be noticed by all users.

2. Introduction

2.1 Illustration about vehicle types



- **M1** is an intelligent robot researched and developed by **M1**, which made the usage of principle of mobile equilibrium for controlling of moving forward, backward and stop. With the tilting of your body, you can control its speed and direction freely.M1 **is very flexible, safe and portable. Broaden your horizon and give you an incredible driving experience.**
- **M1**has been widely used in various aspects of work and live , such as personal transportation, working patrol, indoor venues, tourism entertainment and car carrying and so on.

2.2 Serial Number

- The serial number of **M1** is unique and exclusive.

Serial number is important for quality tracing, insurance claim, claim of missing.

The way to get the serial number

- Acquiring the serial number at the outer box of the package.
- The serial number consists of eleven number or letter in total
- Record it and keep it well

2.3 How M1 works

- **M1** consists of main body, wheels, electric drive system, etc. The wheels are located on the both sides of the main body. The power source ,the control circuit ,drive circuit ,sensor and control switch are assembled inside the main body .The speed sensor and angle sensor are connected by swing joint. They work together to transmit information to the control circuit regarding to the intersection inclined angle of the wheels and the main body. Therefore, the above actions and the software inside calculate the torque and the running speed so that **M1** can be balanced itself.
- Regarding to the car handlebar, when you lean it to your right gently, it turns right; when you lean it to your left, it turns left. And when you make it stands vertically, it will keep going straight
- We suggest that all users should lean their body right or left when he/she leans the handlebar respectively. Because the inertial dynamic system inside can only control the direction of forward and backward instead of right and left. Therefore, to avoid centrifugal forces in turning and increase the security of riding **M1**, we recommend that all users should take the above advice seriously.

3. Assembly Instruction

In this part, we will talk about the parts of M1 and how to install M1.

3.1 Double check the spare parts inside the package

Please check the package of **M1** and make sure that all parts are complete. The spare parts of **M1**are listed as follows, if any of them is missing, please contact the local agent or us directly.

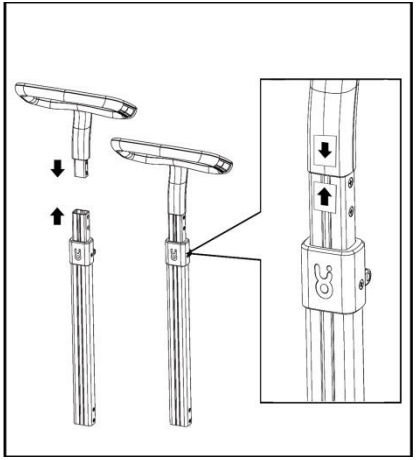
1、 **Main body**	8、 **Screw bag (3 hex screws)(Optional)**
2、 **Handlebar grip**	9、 **Front bag**
3、 **Handlebar stem**	10、 **Tool and screws bag (which contains of erecting tools and 10 screws)**
4、 **Short handlebar**	11、 **Two remote keys**
5、 **Charger**	12、 **M1 Product Manual, tutorial video and warranty**
6、 **Main body of short handlebar(Optional)**	13、 **Certification of quality**
7、 **Screw cap(Optional)**	

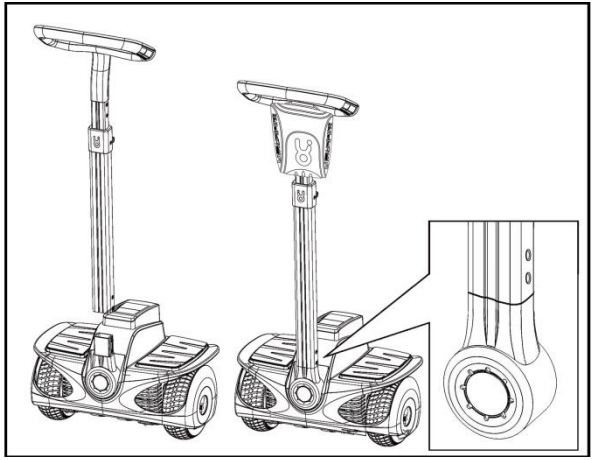
3.2 Assembling M1

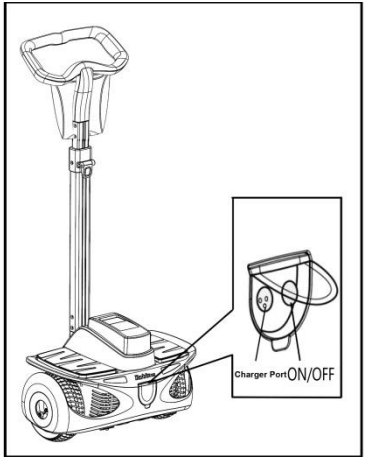
Step 1: put the handlebar stem into the adapter at main body and tighten it up with screws as follows.

Step 2: put the handlebar grip into the adapter of the handlebar stem and tighten it up with 4 M5 screws as follows.

Step 3: press the power-open button behind the main body of **M1** to turn it on.







WARNING

- **Please make sure the power is off when you conduct any maintenance or installation of M1.**

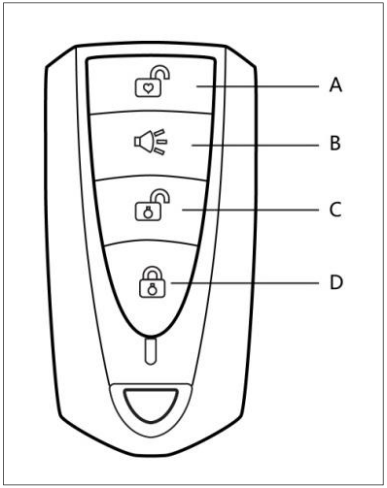
4. Controlling of M1 and the display device

4.1 Remote control of Robstep 1

You can control Robstep-M1 by the remote control within 10 meters.

WARNING

- In some heavy electromagnetic interference area may not reach 10 meters



- **A: the beginner mode.** Pressing this button so you can enter into the beginner model whose speed limits within 7km per hour. If you don't use it for more than 10minites, then **M1** will shut down automatically.
- **B: warning and locking mode.** Pressing the button **M1** can keep locked and give bumming and vibrating while someone else attempts to move it. If you want to unlock it, just press it again. However, if you keep the **M1** in the state of bumming within 18 hours, it will turn off automatically.
- **C: normal mode.** You have to turn off the beginner mode when you want a normal mode. Turn off the power and then turn it on so you can enter into the second mode with speed limit within 15km per hour.
- **D: shutdown.** Press the button and **M1** will be power off. In this mode, the system will auto enter into the state of deep shutdown if leave **M1** for more than 18 hours, as for power saving, Then you should press the power butter in the back of the main body to restart the **M1**, And it can be power on

again by the remote key. If you long press the off button under the state of shutdown, the system will cut down the main power automaticlly, and also enter into the state of deep shutdown. Press D" shutdown**"** button again during power off mode,system will cut down the main power automatically. In order to save more power. Press the button beyond charging gate will power **M1** on.

- **A + C : under unmanned mode.** press button A for 3 seconds(the buzzer will make a sound of tick) ,
  then press button C in the following 3 seconds, **M1** can enter into self-checking system. Before the start of self-checking, the body of **Robstep** shall be hung up. In the state of self-checking, you will hear the bumming sound and all five lights keep flickering. The system of **Robstep** itself will conduct a series of self-checking, in the meanwhile, the wheels will turn on automatically in a slow speed. If there is no problem after self-checking, the system will shut down normally. Otherwise, warning sound of beeping will come from the buzzer and it will turn off automatically. Under this condition, we insist that you should send the **M1** to your local agent or contact with us directly.

4.2.1 Buttons of remote control 2

You can control Robstep-M1 by the remote control within 10 meters.

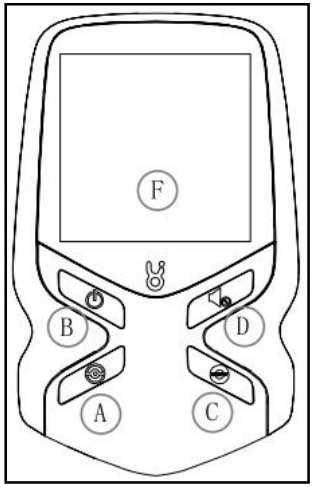
! WARNING

- In some heavy electromagnetic interference area may not reach 10 meters

As the image at left side, the remote control contain 5 area. **A,B,C,D** are function buttons, **F** is the display area.

- **A：** Turn on normal mode button. This button have 2 function:

① When the unit is turned off by remote, turn it on again by pressing this button for 4 seconds.



② When **M1** is turn off and already connected with remote control, by pressing this button **M1** will enter normal mode (top speed limit to 15km/h). If **M1** is idle for more than 10 minutes, it will turn off automatically and remote control will enter energy saving mode. If **M1** shut down (idle for more than 18 hours), remote control will turn off automatically.

- **B：** Turn off. This button have 2 function:

① Turn off the unit by pressing this button for 4 seconds.

② In unmanned mode ,when the remote control have been connected to **M1**,It was on unmanned mode ,Press the button **M1** to turn it off.

- **C：** Beginner mode. This button have 2 function:

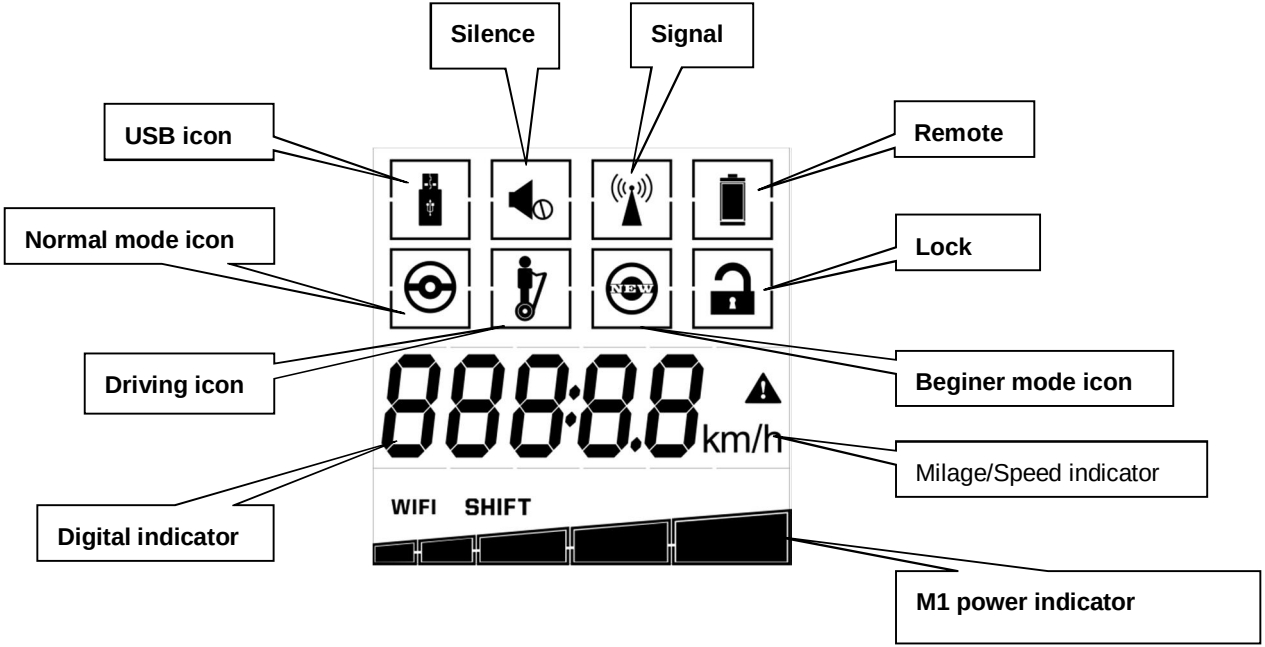
① When robstep is turned off and connected with remote control,by pressing this button **M1** will enter beginner mode (top speed limit to 7KM/H). **M1** will turn off automatically when it is idle for more than 10 minutes and remote control will enter energy saving mode and keep connected with **M1**. If **M1** is in shut down mode(idle for more than 18 hours), remote control will turn off automatically.

② When **M1** is turn on, long press **C** button, when you hear a beep sound then press **A** button,**M1** will be in self checking mode.

- **D：** Lock mode

When **M1** is turn on and idle, by pressing this button **M1** will enter lock mode. By pressing this button again lock mode will be turn off. In this mode, if somebody touch it, it will vibrate and have sound alarm. If **M1** in lock mode for more than 18 hours, it will shut down automatically.

4.2.2 Sreen of remote control

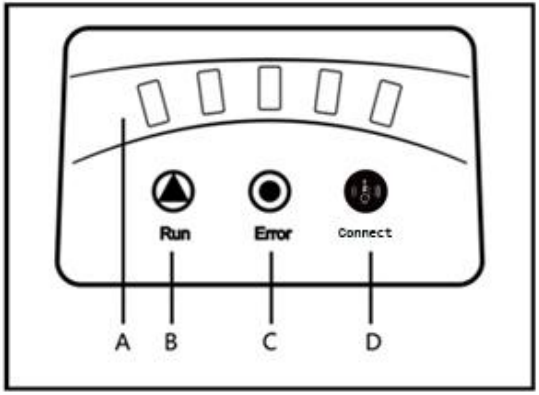


The sreen of remote control detail description:

- If the frame of this icon keeps flashing, that means remote control is trying to connect with **M1**
- If the remote control is connected with **M1**, frame of this icon will be shown all the time.
- When remote control is connected, **M1** power indicator update automatically, frame of silence icon and lock icon also update. If **M1** is move, frame of driving icon will be shown, and digital indicator will display the speed. When **M1** is turn off, digital indicator will display total milage.
- Normal mode icon and beginner mode icon will indicate when you turn **M1** on by A or C button. When it is on, the frame will be shown.
- If you press lock button the frame of lock icon will be shown.
- If the power of remote control is full, icon will be shown like ; if remote control is out of battery, icon will be shown like ; when the remote control is charging, frame of icon will keep flashing
- When display milage, it will show **km**, when display speed, it shows **km/h**.
- shows the power of **M1**. When it display , means **M1** low power. means **M1** full of charge.
- **WIFI** **SHIFT** and are not in use at this moment.

4.3 Display board

The display board of M1 is located on the top of the battery. It shows information about M1 when it is working.



- **A : Display board of power consumption.** After a fully charge all five lights will be always on normally. Each of them means 20% of power. If four lights are on it means there is 60%-80% left.
- **B : The green indication light.** It will keep flashing in normal situation when it is turned on. Always on when charging. If something go wrong it will not turn on.
- **C : The red indication light. It mean system error when it is on.**
- **D : Indication light of Bluetooth.**

4.4 Pedal sensor

There are two sensors under each pedal, once any of them feels the pressure when the user stand on it, M1 will enter into the balance model automatically.

WARNING

- **Please make sure that your feet are standing on the pedals .**
- **Please don't put any objects on the pedals, it will keep the system operate and increase the possibility of collision and even damage to M1, also might cause physical injuries to users.**

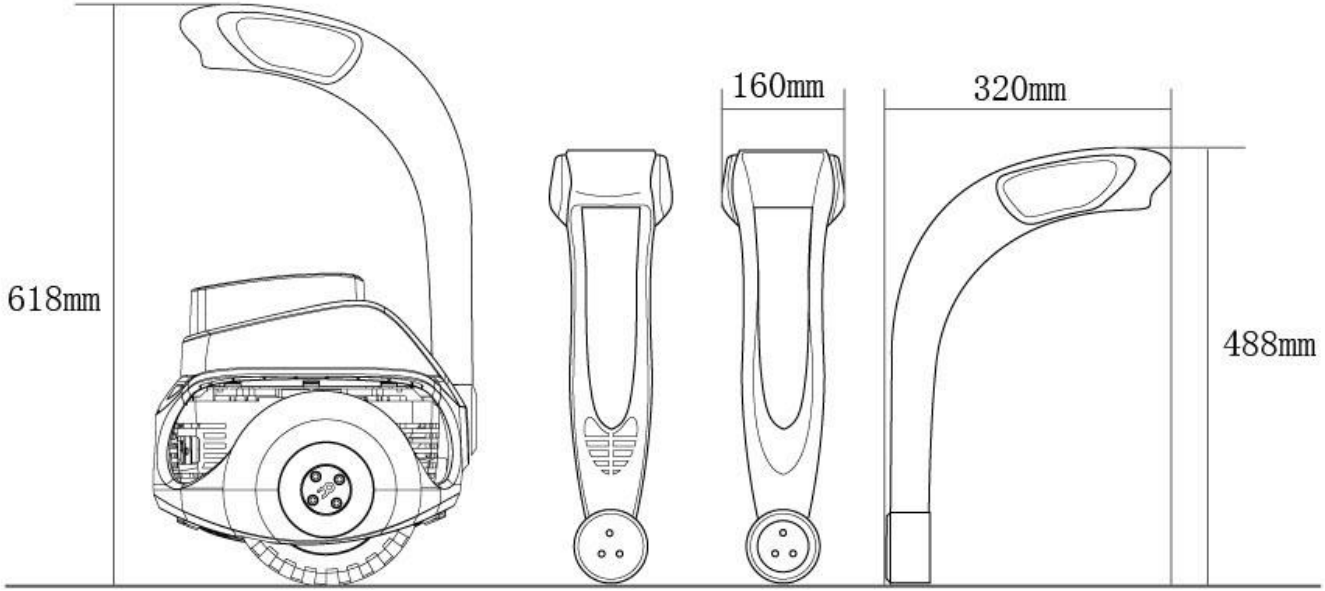
5. Introduction of short-handlebar

5.1 Description of short-handlebar

Short-handlebar is developed and manufactured by **Robstep** with using driver's knees to control the direction of **M1** . Short -handlebar is small and light weight; easy to install and flexible to control. When the **M1** is under the balance mode, user can control the driving speed and direction of **M1** by the short-handlebar to user destination,

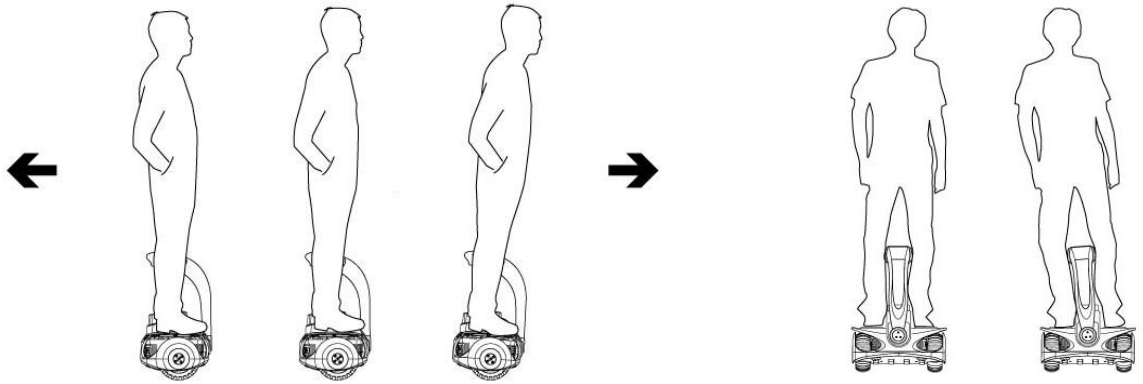
5.2 Parameters of short-handlebar

Model	The short-handlebar for M1	**Height**	488mm
Net Weight	1.35kg±0.2kg	**Length**	320mm
Turning circle	0mm	**Width**	160mm


618mm
160mm
320mm
488mm

5.3 How does Robstep work ?

- **M1** short-handlebar is an accessory of **M1** , which can displace the deflection bar combination and the handlebar. It will meet the function to adjust the direction of **M1**. In addition, the **M1** with short-handlebar has the same working principle with the normal **M1**. The **M1** with short-handlebar consists of main body, wheels, electric drive system, etc.
- Direction changing controlled by short-handlebar. With user's right calf or knee turn left gently, **M1** will turn left. When user left calf or knee turn right gently, **M1** will turn right. If user's body keep upright, that means short-handlebar is stand vertically in the middle of the main body of **M1**, it will keep going straight.
- Balancing device inside **M1** will only balance on forward and backward, but not balancing the left and right. When user changing direction by using short-handlebar, please lean your body to the direction of turning.



5.4 Check the package

In this part it shows how to assemble a short-handlebar

M1 short handlebar package come with the following components(View 3.1), please contact local distributor or us if you find something missing.

5.5 Assemble the short-handlebar

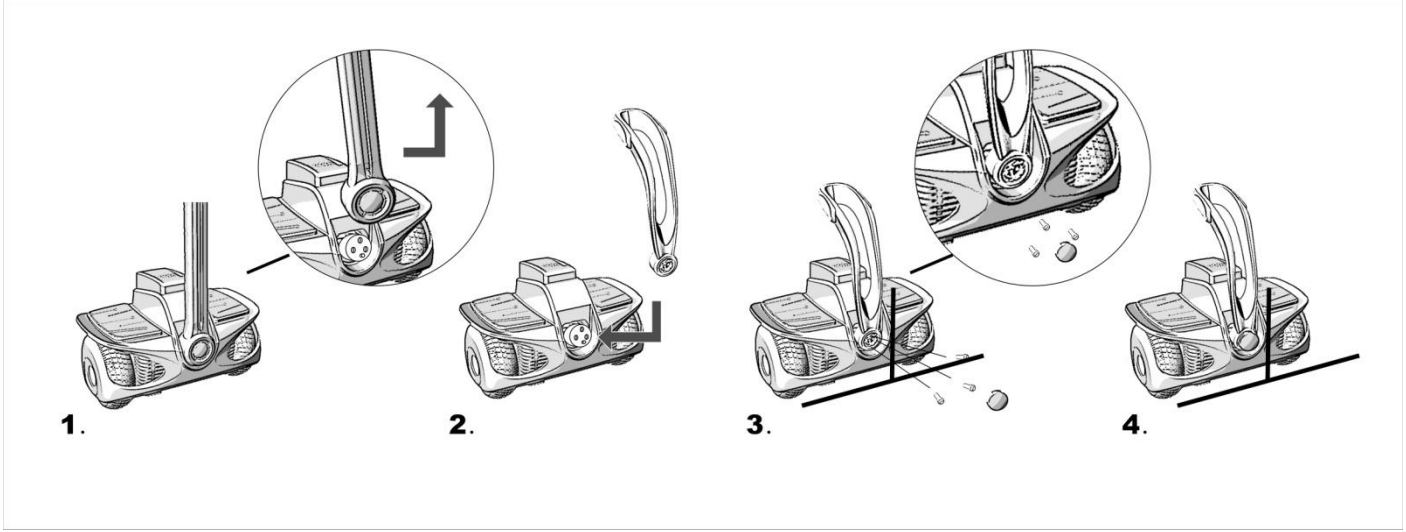
Step 1: Make sure **M1** is disconnect with charger and turn off.

Step 2: According to the instruction, dismantle the handlebar of **M1**. User can use the Allen key to loosen the screws, and get rid of the handlebar. Please keep the screw cap and screws in a memorable place.

Step 3: Insert the short-handlebar into the axle mounting area (see the below detailed picture NO. 2), make sure to mount it with right position and keep the short-handlebar stand still and motionless.

Step 4: Tighten up 3 screws(make sure the logo is facing front). Insert the screw cap onto the mounting area and confirm that the short-handlebar is stand still; turn the handlebar left and right and make sure that if it's assembled correct.

Step 5: Use mobile app to adjust running parameters of M1, please reference to 14.5


1.
2.
3.
4.

6. Instructions of battery

This part mainly describes how to charge M1 at home, how to take good care of the battery, needed precautions and battery specification.

WARNING

- **To protect your safety and maximize the service life of battery, please operate it under the following instructions.**
- **when it's almost no power please stop using and recharge.**
- **Make sure power is fully charged before storage. Charge every three month if no intend to use it.**
- **Avoid over discharge, the battery should be recharged in time or within two days when after it lost all power**
- **When it's almost no power the alarm will beep and please step off M1. Please do not use M1 when it's recharging, it will harm the battery life and cause accident.**
- **Lease stop using M1 if any of these happens: 1. peculiar smell comes out from the main body or overheated; 2. any material leaks out from M1.**
- **Only technicians from local agency can make maintenance with the battery.**
- **Don't let children and animals touch the battery in case of any injuries. Make sure that the charing cable is unleashed from M1 before riding.**
- **There are toxic substances inside the battery, so never try to open it or unclench it with any equipments or even put any other material into the battery.**
- **Don't touch any material leaks out from M1**
- **Only equipments provided by us can be applied on the charging of M1.**
- **The battery of M1 can only be used under the admission of local law.**

6.1 Low power

Please stop riding **M1** when the battery shows low power. At that time, the system will gradually slow down, and shut down automatically after 7 seconds. If you insist to ride, you might fall from **M1**, get injuries and cause damage to the battery and the unit.

6.2 Charging steps

- Open the charging port at the back of **M1**'s body
- Make sure that the charging port is clean and dry
- Plug one side into the charging port of **M1** and the other side to the socket (100/240V universal)
- Please stop charging when the red light on the charger turns to green. Overcharge might affect the lifetime of battery.

WARNING

- **Please use the standard plug of your region or country.**
- **Please recharge and store the battery according to the instruction, otherwise, the battery might be damaged and shorten the battery life.**

- **Charging time of M1 is approximate 4 hours**
- **The lifetime of the battery is limited. Generally, the battery can be fully recharged and discharged for 500 times. When the battery is recharged and discharged more than 500 times, the using time of M1 will decrease dramatically even it's full of power.**
- **Please recharge M1 before the first time of use. If you haven't used it for a long time, please recharge it before use.**
- **The battery can be recharged even there's still power inside M1.**
- **An ambient temperature range of 10-30℃ is highly recommended for the battery's best performance.**
- **After a long ride, it is normal that the battery temperature gets high.**
- **The travel distance will become shorter in cold area even the battery is fully charged.**
- **Keep the environment dry and clean during charging**
- **Do not pull the plug into the charging port if you find it is wet**

- **Do not put the battery in the fire or heat it, and no storage in high temperature is allowed.**
- **Do not put the battery in the water, keep away from wetness when it needs to be stored.**
- **Do not put anything into the charging port, it may cause the internal electric device short circuit.**
- **Do not disassemble the battery and change the battery structure.**

6.3 Temperature too high or too low

- In order to keep the best performance, please ensure that the battery temperature remain in a certain ranges specified in the instructions. In case of overheating during riding, the system will make a safety warning.
- Please keep the temperature in a certain area before charging or during charging. If the temperature is too low or too high, it might increase the charing time or the battery might not be able to fully charged.
- The travel distance will become shorter in cold area.

6.4 Precautions of battery transportation

NOTE:

- **Lithium battery is considered to be toxic material by most countries, make sure that you are lawfully permitted before you transport it to any other places.**
- **If you intend to transport the battery by flight or any other types of shipping, please contact with the local agent or us for inquiries information about transportation of hazard material.**

6.5 Specification of battery

Battery type	Lithium battery
Charging time	Four hours (Approx.)
Voltage	48v
Weight	3.1kg(For reference, Detailed see the actual weight)
Beginning volume	8Ah
Size	165mmX145mmX 85mm
Operating temperature	-10℃~50℃(Recommended temperature : 10℃~30℃)
Charging temperature	-10℃~35℃(Recommended temperature : 10℃~30℃)
Storage(10℃~ 30℃)	Three months(Fully charge before storage)
Storage relative humidity	5%~95%

7. Safety precautions

- Dongguan **Robstep Robot Co., LTD** hopes all users can drive **M1** safely and enjoy it. Remembering that how you learn biking, driving a car, skiing or using other similar traffic tools , all these experience can be applied to our products.
- Please follow all instructions from the "User Manual" and “tutorial videos" so that you can drive **M1** safely. Please check the tires if there is any damage, check the unit make sure everything is tighten up every time before you use it. If you find Any unusual condition, please contact the local agents for help immediately.

WARNING

- **Please read "User Manual" and watch "tutorial videos" carefully, you can get a lot of important safety information, including speed limit, vibration warning and safe shutdown, etc.**
- **You must install every component reasonably before using M1, to avoid product damage.**
- **Please don’t use M1 to do anything might endanger personal safety and property safety.**
- **Please don’t modify M1’s components, which may affect the performance of M1, even damage M1. Meanwhile it may cause other serious damage.**

7.1 The weight limit of users

- The reasons for weight limit are as follows:
  - Ensure users’ safety.
  - Reduce the damage caused by overweight.
- The maximum weight limit for driver: 100kg.
- **T**he minimum weight limit for driver: 35kg.

WARNING

- **You may fall down from M1 if it is overweight.**

7.2 The maximum driving distance

The maximum driving distance is related to all kinds of factors, for example:

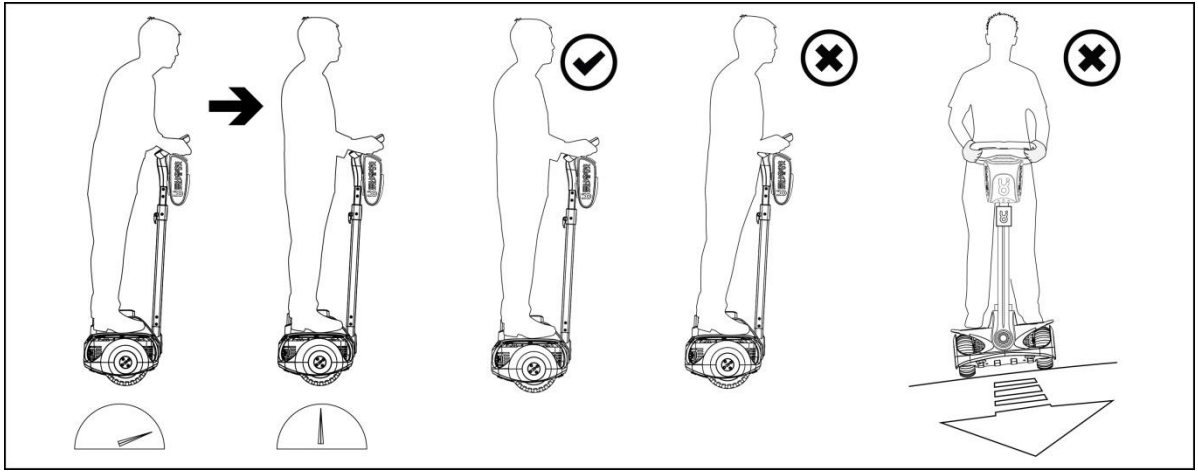
- Terrain: The driving distance will be increased when driving on the smooth and flat surface, otherwise the driving distance might be reduced.
- Speed and driving style: maintain a moderate speed will increase the driving distance. On the contrary, start-up and stop, acceleration and deceleration frequently will reduce the driving distance.
- The weight of user would effect the driving distance.
- Storing, charging and driving **M1** within the recommended temperature will increase the driving distance.
- Maintain and charge the battery follow by instruction will increase the driving distance.

7.3 Speed limit

- The handlebar of **M1** will lean to the driver when it approaching the top speed ,which reminding you that you should stop accelerating. The buzzer will alert if you back too fast to the retreat speed limit, to remind you that you should slow it down.
- **M1** can keep balanced well within the stipulated speed. The handlebar will lean to the driver's body when its speed is to surpass the stipulated speed in order to remain a safe speed.
- Please keep a safe distance between your body and the handlebar.

NOTE:

- **Please don't drive or make any turning on the transverse slopes , which will lead to the shifting of balance angle of M1 and result an uncomfortable driving experience.**



7.4 Vibration warning

- **M1** will send a vibrate warning message under the following circumstances （1）Alarm when it is in lock mode; （2）Over speeding for going backward; （3）Any attempts of stepping upon **M1** during charging Please stop using **M1** when it is under (2)&(3) situations listed above. Please stop **M1** immediately and get down from **M1** when it vibrates strongly during driving ,and do not try to step on it again.

7.5 Abnormal condition

- **Please stop driving M1 if you see the safe parking information or the battery is out of power. User might get injuries under these circumstances.**
- **If the battery power reaches the bottom and user continues to drive M1, the battery life and its capacity will be affected.**

8. How to use M1

You need to note some safety information before driving M1. It is very important for you to understand all safety information provide by the user manual.

8.1 Start up M1

Introduction of start up

- If this is your first time to start **M1**, please press the start button at the back of **M1's** Body.
- Then you can turn on and off **M1** by remote control directly.

8.2 Safe Parking

- When **M1** detects low power or overheat during driving, the system will then generate a secure parking information, User could feel a high-frequent vibration, at the same time **M1** will stop by itself automatically. Please get off **M1** when it is stop.

WARNING

- **For safety reason , M1 will keep balance for one second after user get off from it.**

8.3 Driving steps

- **Step 1:Starting M1**

By press the button at the back to **M1** to start it up ,then you can see the indication light turn on. If the indication light keep flashing that means the machine operates normally.

- **Step 2: prepare to get onto M1**

There are two sensors under each pedal, they can detect the pressures when user step on it. According to the tilt relation between the **M1** and user, there are two situations:

（1） **M1** tilts more, user put one foot on the pad, then **M1** will vibrate to let the user know the tilt angle is too large, please don't get on **M1**;

（2）**M1** tilts less, user put one foot on the pad, **M1** automatically balance to the vertical posture after the sensors sense the user. The buzzer gives out "drip" sound, which indicates that the system has entered the manned work mode.

- **Step 3:Get on M1, control M1 forward and backward**

Put one foot on **M1** gently first, then the other foot. ~~The~~ user should keep the balance of body gravity when standing on **M1** ,which can make **M1** hold still. Lean your body gently forward or backward to make **M1** go forward or backward, please remember do not lean your body too much.

- **Step 4: change direction**

Lean the handlebar left or right to make **M1** turn left or right.

- **Step 5: Get off M1**

Keep **M1** motionless and balanced before getting off from it .Get off one foot first ,then the other one.

WARNING

- **Please don't shake the handlebar violently, which will increase the probability of accidents .**
- **Try to maintain balance for M1 when step down.**

8.4 Driving practice

Before you drive M1 outside, for your safety, please make sure you can handle it well:

- Practice driving in an open field on your first riding.
- Keep practice until you can easily get on, make forward and backward, turn, stop and get off.
- By practice, you can drive **M1** on narrow and winding ground.
- If you cannot handle **M1** well, please don't drive **M1** to places where are full of children, pedestrians, vehicles or obstacles.
- If it is your first time to drive **M1**, please practice in spacious and safe places.
- You can drive **M1** on different terrains ,but you must slow it down in unfamiliar terrain. Please don't allow **M1** off the ground at any time.
- **M1** is a complementary-type vehicle, which uses on the flat surface only. Users should make sure their hands in a vertical state when driving **M1** on uneven surface, making it to the direction you want to go by turning the handlebar and allowing the tires to follow the contours of the road when driving.

9. Driving safety instruction

This section provides some safety knowledge and warning, which helps you to understand the safety matters of driving M1 effectively. In order to ensure you can drive M1 safely, please make sure that you read through the "user manual" and abide by the relevant safety instructions.

WARNING

- **It may cause accidents such as losing control, collision and falling down when you drive M1 at any time. In order to avoid accidents, you must read the user manual instructions carefully. Please ensure M1 in good condition, and use it after you have known all the content of user manual well.**

- When you drive M1 , please ensure for the safety measures such as wearing helmet ,knee pad, elbow pad.
- M1 is only applicable to personal entertainment and it is not recommended to use as public transportation. It is banned to use on Motor lane.
- Please don’t drive M1 on abrupt slopes.
- Please don’t let children ,the aged, or pregnant drive M1. Generally, we recommend that only teenagers who are more than 16 years old should drive M1.
- Please don’t drive M1 when you are drunk or in any kinds of medication.
- Please comply with the state and the local traffic regulations when driving M1.
- The driver must confirm the moving speed within a safe range. Be ready to stop M1 at any time.
- Don’t drive M1 when it is dark and you can not see the road clearly.
- Please avoid driving M1 on snow, iced surfaces or wet and slippy floor, etc.
- Please avoid driving M1 on surface full of sporadic objects like twigs, garbage or small stone.
- Please avoid driving M1 in narrow or impedimental places.
- Please avoid driving M1 on any unsafe environments. Some dangerous places might cause fire or explosion by flammable gas, steam, liquid, dust or fiber.
- Please drive M1 in a suitable environment. If you need to get permission from others, please make sure you have done that before your driving.
- Please be alerted about your surroundings, maintaining a good vision will help you drive M1 more safely.
- Please don’t start or stop M1 suddenly. Please do not drive M1 backward at a high speed.
- Clench the handlebar tightly, relax your legs, bend your knees slightly, these can help you keep balance when driving on the bumpy ground.
- For a comfortable gesture, you can adjust the handlebar to a right height, and make sure your feet are always

standing on the pedals.

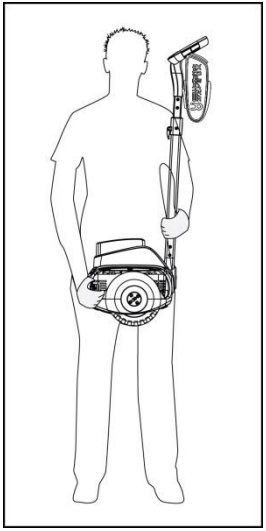
- **Please keep some distance between your body and the handle when you driving , it will increase the possibility of losing control, collision and falling down if it is too close.**
- **Please wear suitable sports clothes to drive M1, which will help you deal with emergency better.**
- **Please remember that you will be 21 centimeters higher than your normal height when driving M1, so remember to keep your head a little bit down when getting through doors.**
- **Please note your body balance when turning , avoid falling down from M1 because of gravity shift or fast speed.**
- **Please don't do anything else when driving M1 , such as make calls, listen music or any other activities, which can affect your driving.**
- **M1 only can load one person at a time, please don't load two or more.**
- **Please keep distance between you and other user to prevent crash.**
- **When M1 out of battery or reach the minimum battery percentage, do not start M1. M1 will not be able to balance due to low battery.**
- **Please don't let hands off the handle bar when M1 is in equilibrium pattern .This action will make M1 go forward automatically for some distance, which may hurt others beside you and damage M1.**
- **This personal vehicle is not designed or tested or proved to be medical treatment equipment. Therefore, all users must be capable of driving M1 themselves.**
- **Please don't exceed or below the maximum or minimum load on the User Manual. If you exceed the load it would be losing control and causing damage. If you less than the minimum load it might not work at all, especially can't reduce the speed or stop when driving on the slope.**
- The installation instructions shall state if the appliance is suitable for outdoor use.
- For appliances that are not at least IPX5 , the instructions shall state that the appliance is not suitable for

installation in an area where a water jet could be used

10. Repair and maintenance

Daily maintenance is necessary for M1. This section is mainly about how to maintain M1:

WARNING	● **Please ensure the power and charging cable are disconnected before carry out for the following operation.**



10.1 Carrying M1

Lift and lower **M1** in the right way: If you want to carry **M1** ,please follow the steps below:

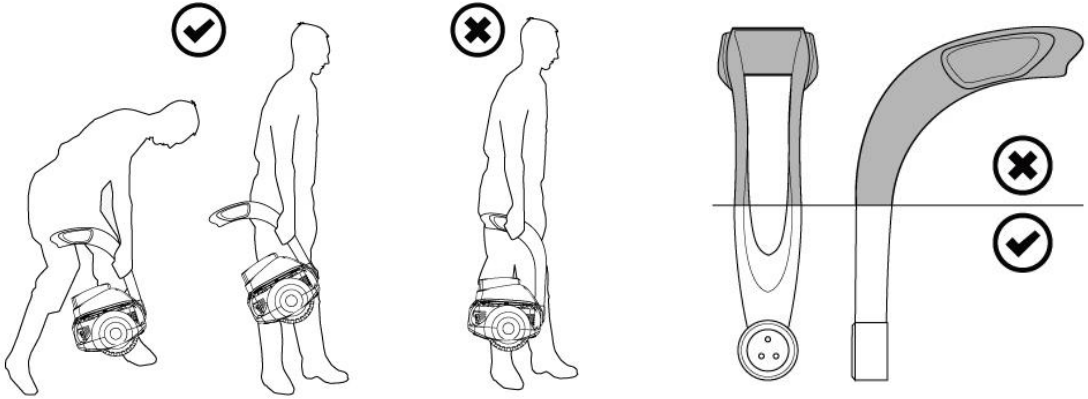
- Make sure that **M1** is disconnected to the charger and turned off.
- Clench **M1**'s pole root with one hand, then raise it with the other hand.
- It's easy to carry **M1** with Parking holder-for vehicle.

10.2 wheels maintenance

- Check the tire components, rotate the tires along the tyre axle with your hand, and observe whether the tyre components shaking or not: if yes, please check the screws in the tyre components installation area and screw them tightly.
- Check the attrition of tires, check if the same attrition for both tires .
- If the attrition of tires are very serious, please contact with the after-sale service department for replacement.

* Lifting notice *

- **Raise and lower M1 in the right way: If you want to carry M1, please follow the steps below:** Make sure that **M1** is disconnected to charger and turned off.
- Grab the bottom of the short-handlebar like the pictures showing below, lift it up, and carry **M1** with another hand to other places. Please do not grab the upper part of the handlebar in that this could lower the lifespan of it.
- Carry **M1** with your arms force.
- It's easy to carry **M1** with Parking holder-for vehicle.



- **M1 will lock itself down and can't be turn on under the condition of running more than 35000km which is the total lifetime of it.**

NOTE:

10.3 Cleaning

Please note these matters before cleaning:

- Make sure **M1** is power off.
- Please wipe **M1**'s shell with soft dry cloth for cleaning.

WARNING

- **Please avoid using water or other liquids to clean M1. If the water and the other liquids seep into M1, it will cause permanent damage to internal electronic components.**

10.4 Storage

Please store **M1** indoor, in a dry and appropriate temperature area. If you won't use **M1** for a long time, please do not try to connect to the power. Because the battery will wear down with the time passes.

WARNING

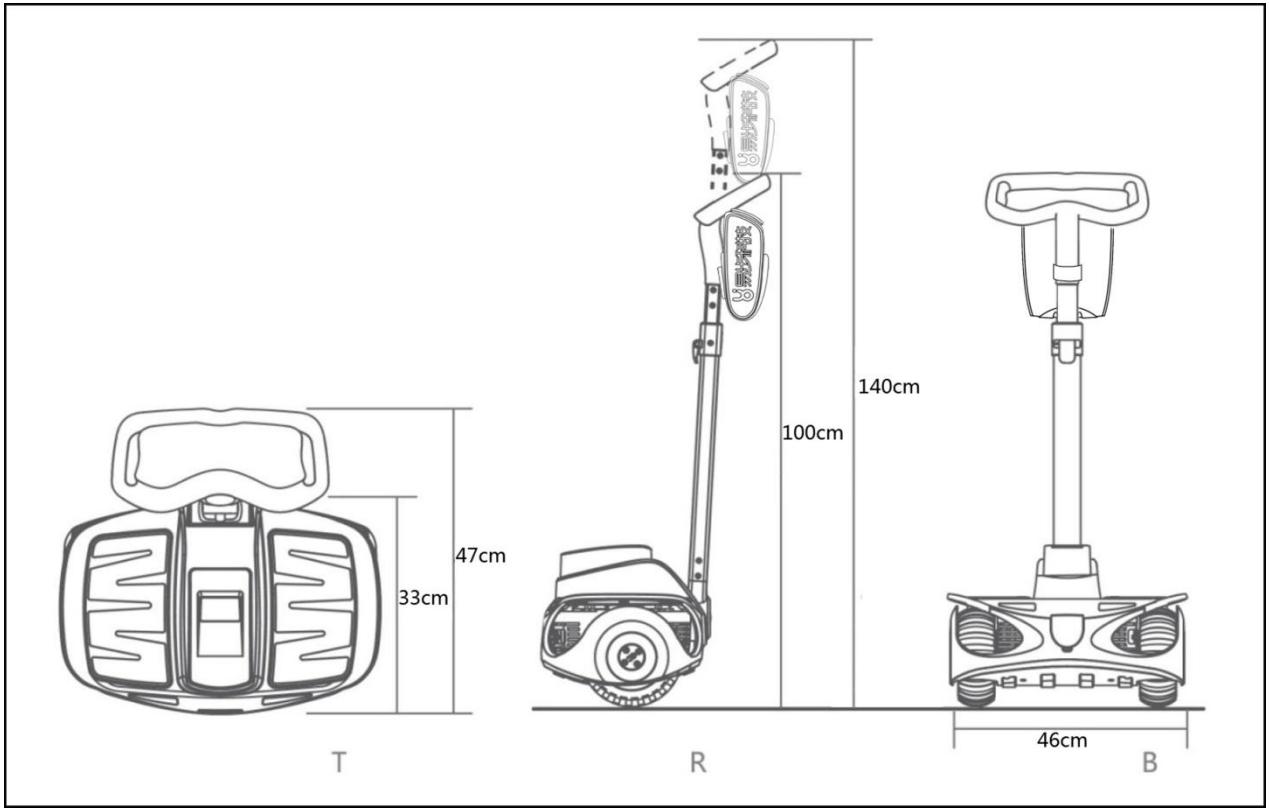
- **Users are not allow to disassemble M1, open internal PCB or gear box.**
- **User may not get warranty if disassemble M1 by themself.**
- **Fully charge before storage. Charge the battery no longer than every three month.**

11. Technical Parameters

Model NO	**M1**	**remarks**
Maximum speed	15km/h	*The running distance of 20km after single charging is tested under the condition of the environment for 25 degrees Celsius, 70 kg weight and flat road. * The actual values will be different according to the different circumstances. * These data are for reference
Distance(after single charging)	20km*	
Max climb capability	15 degree	
Total Weight	18.5 kg	
Min-Max load	35~100kg	
Min turning radius	0m	
Dimension	467(length)/464(width)/1000~1400(height)(mm)(scalable)	
Battery	lithium, 8AH 48volt	
Power requirement	110/240volt 50or60HZ,universal	

Charging time	4 hours	only, please refer to the specific data under different environment.
Tyre type	Vacuum tyre	
Full lifetime	35000km	

12. M1 dimension



13. Fault finding

- Self-checking projects of **M1** include : the sensors, system static electricity, system dynamic electricity, motor speed fluctuation etc. If there is something wrong with **M1** , please contact the local agents or us directly.

NOTE:

- **About all the information, please visit official website :www.robstep.com ;**
- **Product liability insurance covered by PICC**

14. Android tool instruction

This Android tool is for the control of **M1**. For Android system version 2.3 or above only. You may connect you android device

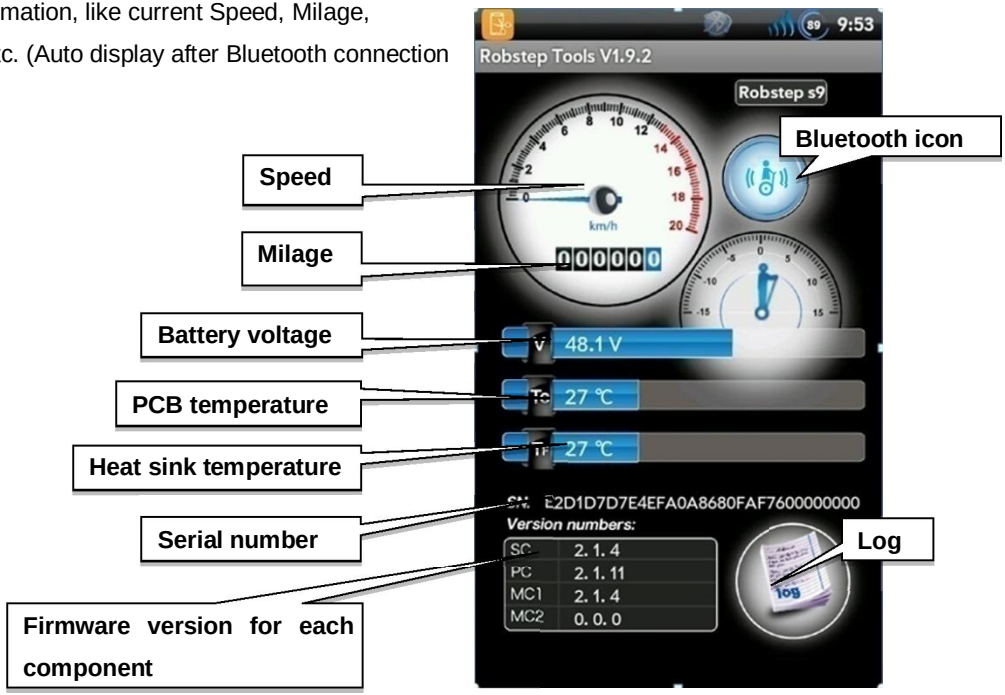
with **M1** via Bluetooth. With this tool you can control **M1** by your free will. (this software does not apply to IOS version **M1**)

14.1 Start M1 tools

You may download the software from our website. After installation, click the icon to start the software as image at right:

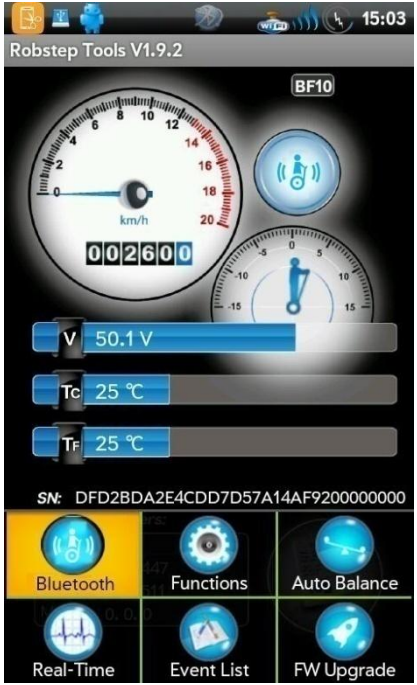
14.2 Robstep tools main screen

- Main screen provice graphic information, like current Speed, Milage, Temperature, Voltage, Version, etc. (Auto display after Bluetooth connection success)



14.3 Robstep tools main menu

- After get into main screen, click the bluetooth icon, connect with **Robstep** via bluetooth; click menu, there are 6 options:
  Bluetooth device, Setting, Auto balance, Real-time graphic display, Event list, Firmware upgrade.
- If the Bluetooth connection failed, setting, auto balance, real-time graphic display, event list and firmware upgrade will not be able to access (icon show as gray color).



14.4 Bluetooth device

- Click the **"Bluetooth device**" on menu or click the Bluetooth icon on screen, **Bluetooth device** page pop up as image follow :

Bluetooth connection

- Select the Bluetooth device and connect, direct into main screen once connection success (a blue Buletooth light on **M1** will be turn on). If connection fail, press the Bluetooth Config to search your device as **Image 1** at right. Enter Bluetooth section, search Bluetooth device, found the target and match connection as **Image 2** at right. Once match success back to **Robstep** tools and connect again.
- If the connection does not success, go to android system setting, select wireless and network -> Bluetooth->scan, after scan select the target to match.
- Please wait for 5-10 seconds for Bluetooth connection after **M1** start up.

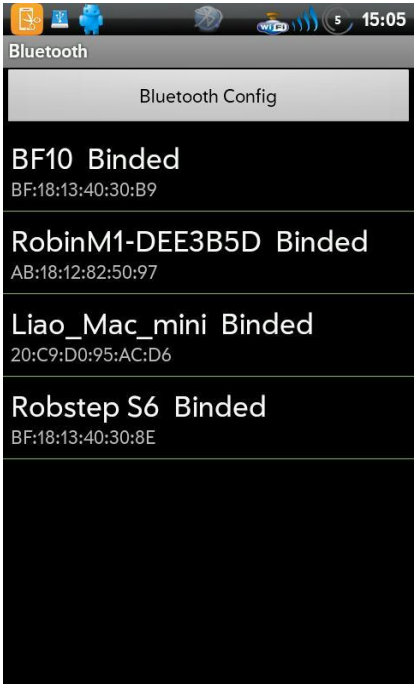


Image 1

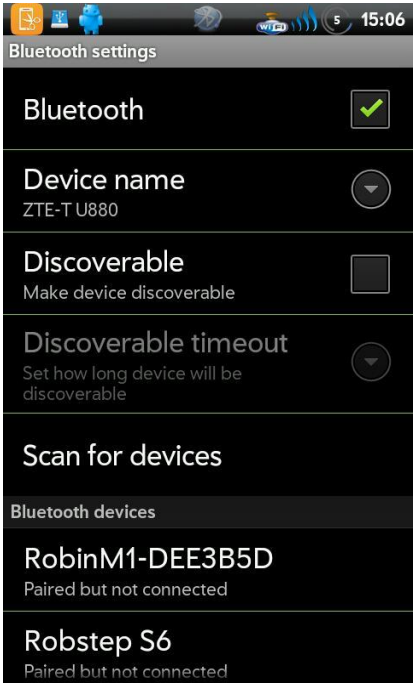
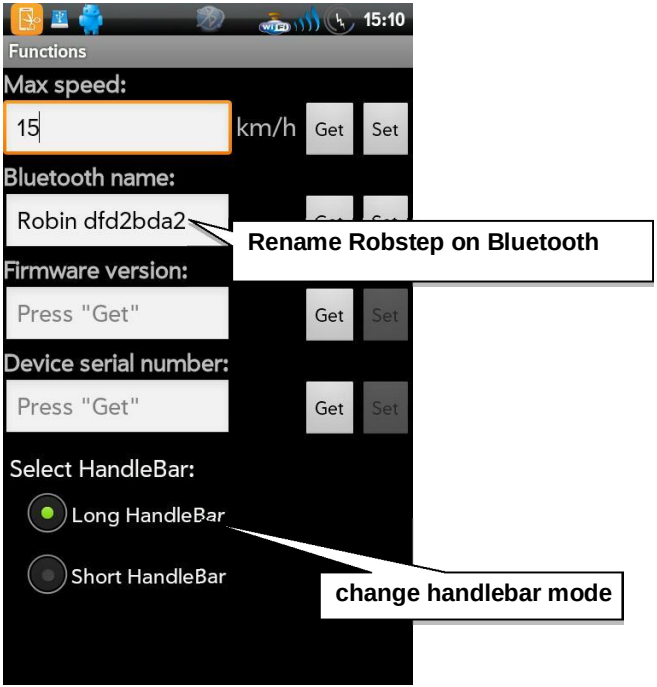


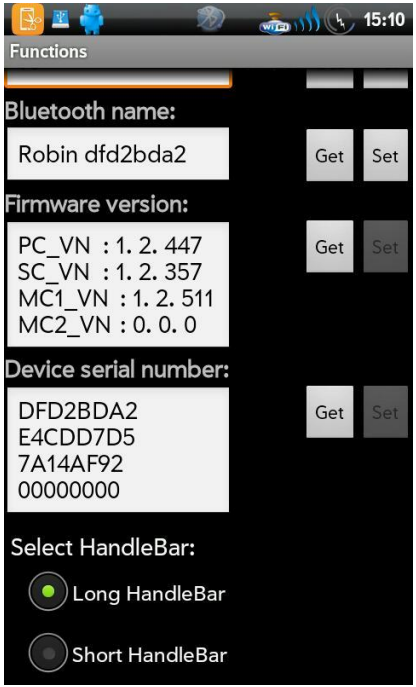
Image 2

14.5 Setting

- Select Setting on menu, as image follow:



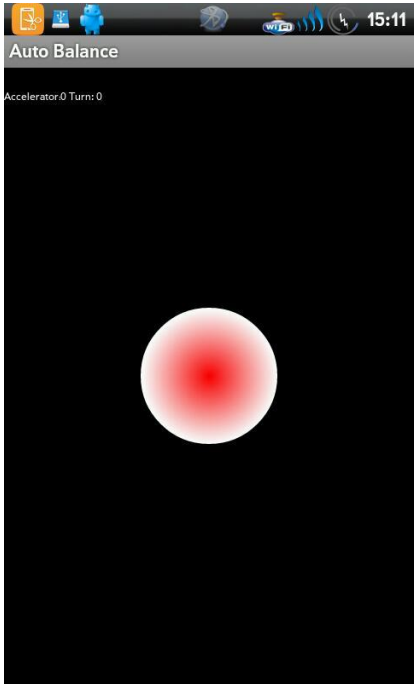
- Setting provide basic settings, you may change the top speed, rename **Robstep**, set the firmware version and serial number, set to normal handlebar or short handlebar.
- By pressing the get button, you can get the information you need. By pressing the set button, you may set the info you wrote into **M1**.
- After changing the handlebar, user need to change the setting inside **Robstep** tools manually to adjust the performance. Please refer to short handlebar user manual for further information.
  (Experienced of normal handlebar is highly recommended before change to short handle bar)



- After changing all the info, press the menu button at your android device and click save. Restart M1 and Robstep Tolls.

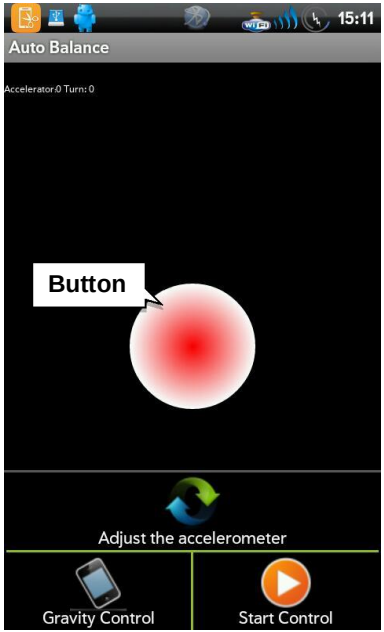
14.6 Self balance

- Click menu on android device and select “Auto balance”, as image below:



User may control M1 to move by mobile phone

- As image at right, into self balance mode:
- Press start control Button, enter manual control mode, use finger move the trackball the control the direction of **M1** move.
- If you would like to enter auto control mode, press " Gravity control" button, hold your device horizontally, tilt your device to any direction you want and trackball will move as your way, then press "**start control**" button, **M1** moves the the desire direction. (If gravity control is abnormal, try to press "fix gravity sense")

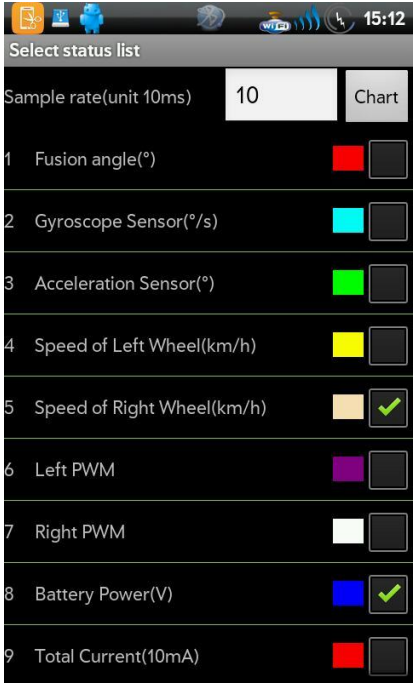


WARNING

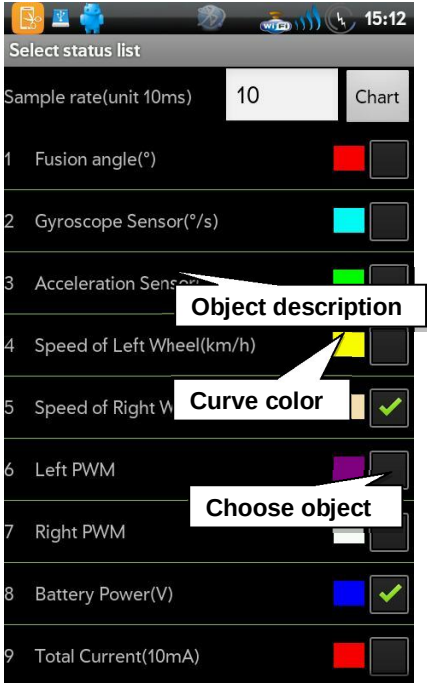
- **Make sure the area for using auto balance function is clean and clear, friction of the surface must be enough, smooth surface may cause M1 out of control.**
- **When user use auto balance function, please keep some distance with M1, do not touch M1 (M1must not be loaded), to prevent M1 lose balance and cause accident.**
- **Do not get too fast at the first time of using auto balance mode.**
- **During balancing, if you would like to stop, press the "stop control" on android device or step your foot on the pedal.**

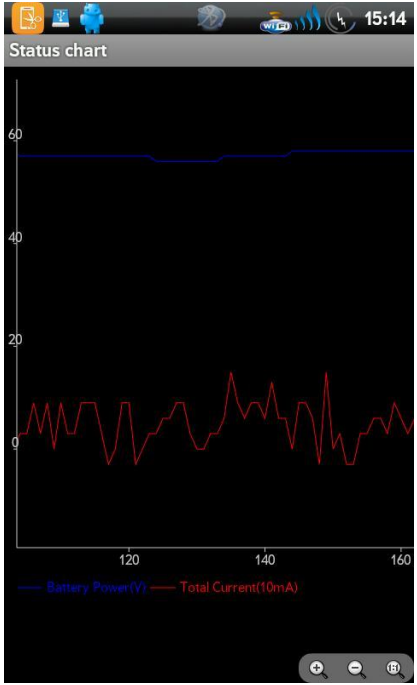
14.7 Real-time graphic display

- Select “Real-time graphic display” as image below:



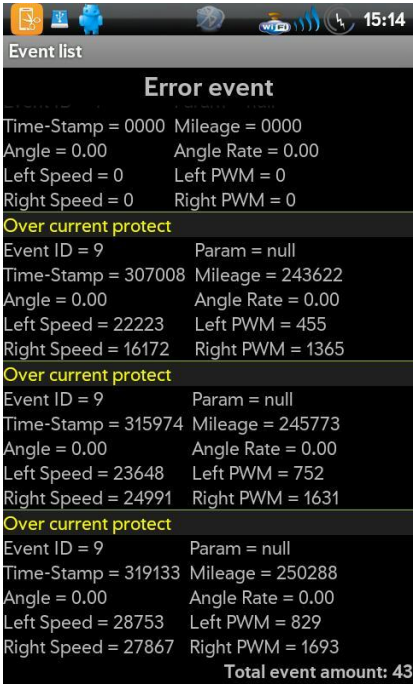
- Real-time graphic display shows the status of every part inside of **M1.** You can choose the content you would like to display, after the selection, set the Sample rate(default 100ms). Press chart to show the chart. Also you may save the chart as data or image.



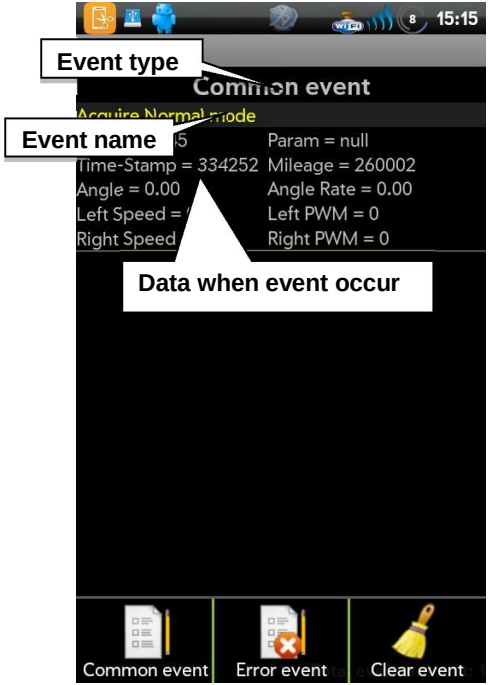


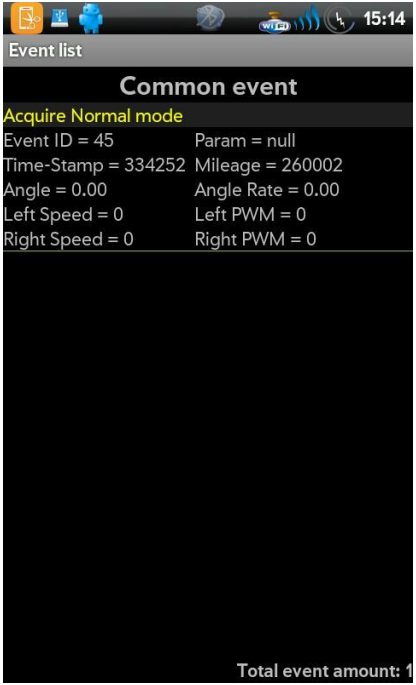
14.8 Event list

- Click menu and select “Event list” as image below:



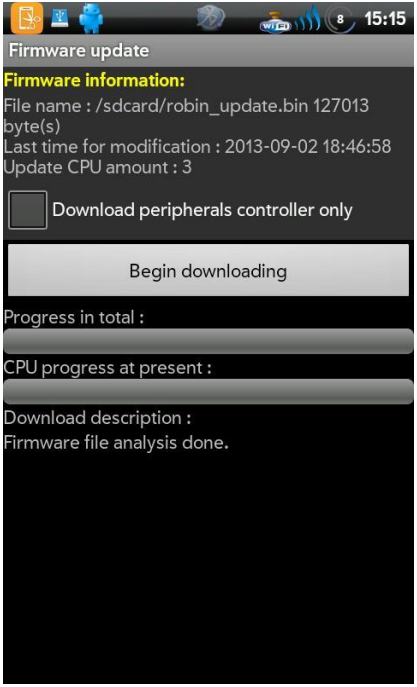
- Event list can be divide to normal event list and error event list (as image below). It is more convenient for maintenance and repair.





14.9 Firmware upgrade

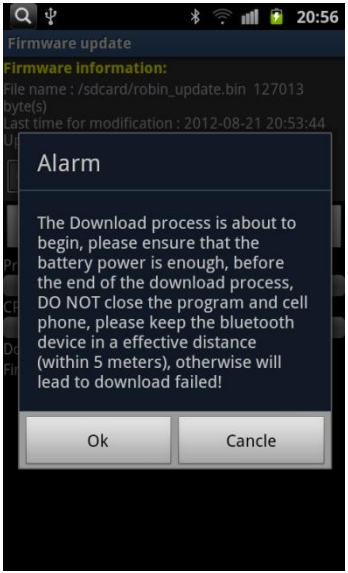
- Click android menu and select **“Firmware upgrade”**as image below:

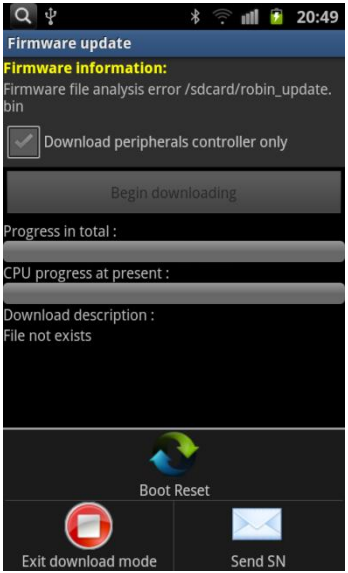


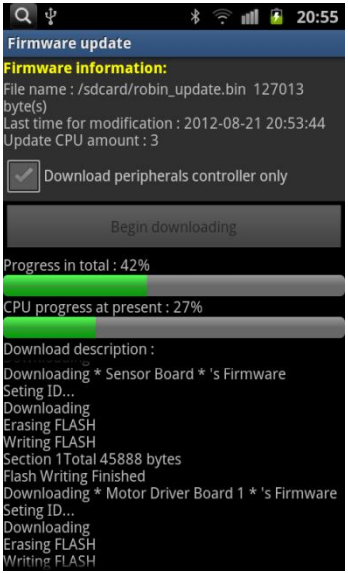
WARNING

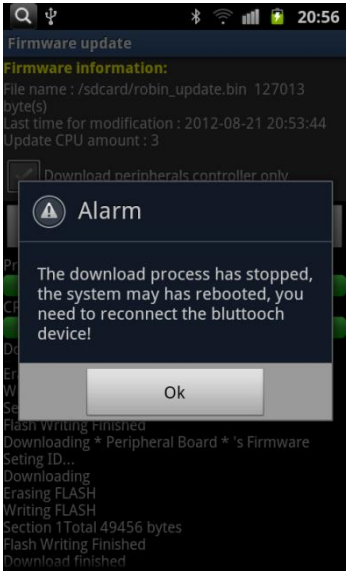
- **Before the upgrade start, make sure M1 have more than 40% power also mobile have more than 30%.**
- **Upgrade must be operate when idle, not driving.**
- **do not turn off the mobile or exit the program during upgrade. Mobile need to be within 5 meters with M1.**
- **M1 may restart automatically after upgrade complete. Please exit the software and reconnect bluetooth.**

- Here is how user use mobile phone upgrade their **Robstep:**









Firmware download process:

- Connect your mobile with **Robstep** via bluetooth and get the Serial Number.
- Send the serial number to **Robstep** customer service.
- Get the firmware **Robstep_ update.bin** from our staff and copy it to the root directory of your mobile memory.
- Reconnect with **M1**, then choose firmware upgrade.
- Do not select "**download peripherals controller only**" and press start downloading. You will be notified by system if firmware upgrade is complete.
- It **M1** does not auto restart after firmware upgrade, please use the remote control to restart.

NOTE:

if upgrade fail, please try the follow ways:

- **If the green indication light keep flashing, press "start downloading" directly.**
- **If the green indication light always on or not on at all, please tick "**download peripherals controller only" and start download.
- **If you still could't fix follow by the way above, please contact Robstep customers service.**

15. IOS tool instruction

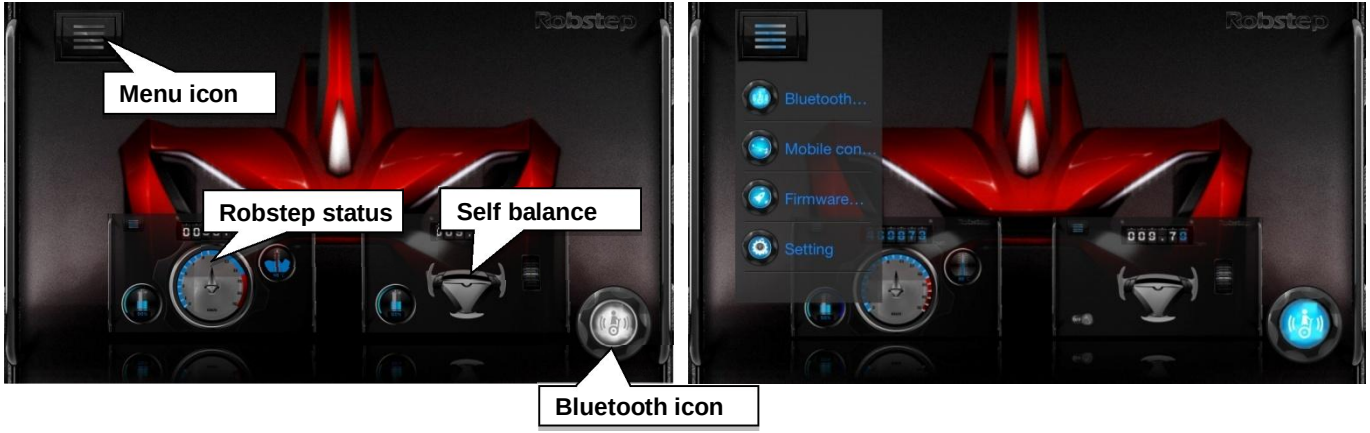
This IOS tool is for the control of **M1**. For Apple Iphone 4S or above only. You may connect you Apple device with **M1** via Bluetooth. With this tool you can control **M1** by your free will. (this software only apply to IOS version **M1**).

15.1 Start Robstep Tools

- You could download **Robstep Tools** from App Store. Install and open it as image at right:

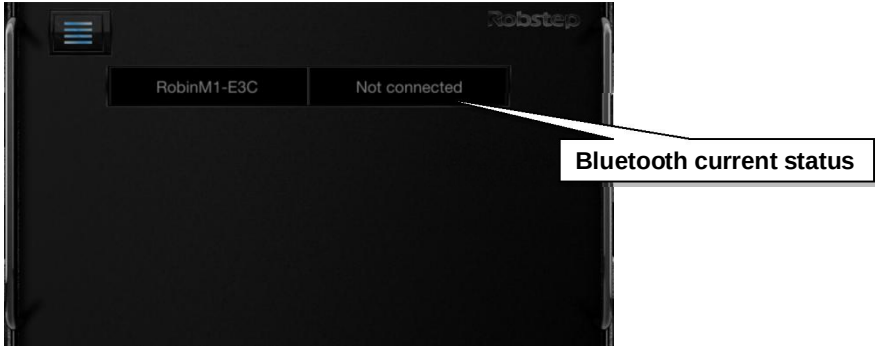
15.2 Robstep Tools Main screen

- Click the Bluetooth icon, make connection with **M1**; When the Bluetooth become blue, click the menu button, there are 4 parts - **Firmware upgrade**, **Bluetooth device, Self balance and Setting.**
- If your device is not connected with **M1**, the Bluetooth icon is in gray color, it will turn blue when connected. Then **Robstep tools** will function correctly.



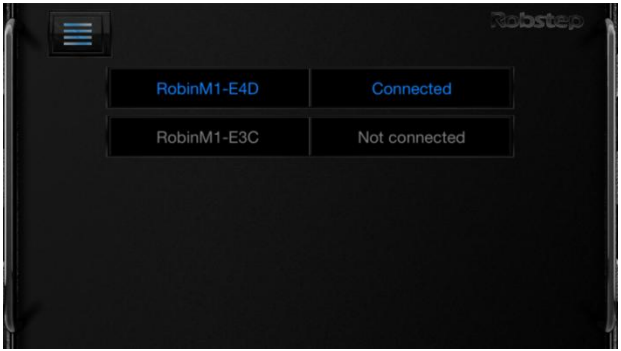
15.3 Bluetooth device

- Press the menu button then select “**Bluetooth device**” or click icon directly, bluetooth setup screen pops up



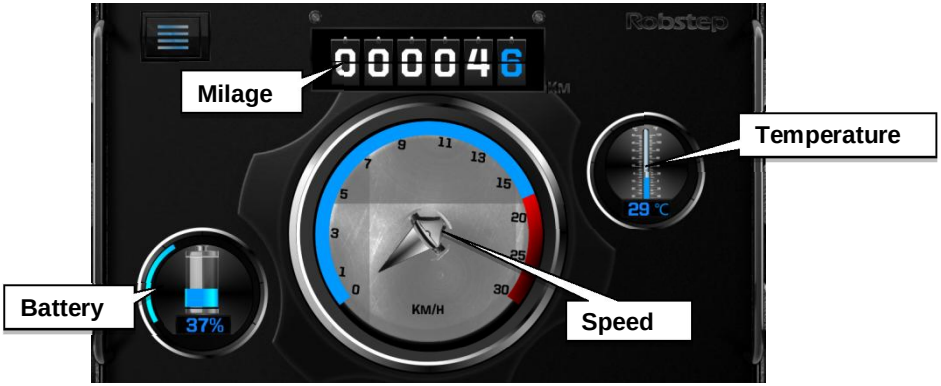
Connect mobile devce and M1

- Select **M1** inside the Bluetooth page and then connect. After connection success, status will become connected (at the mean time Bluetooth light will turn on at **M1**).



15.4 Robstep status

- Press **Robstep** status at main screen, all the detail will be display in a new status page.
- Status page shows current **Speed, Milage, Temperature and Battery percentage.**



15.5 Auto telecontrol

- Press the “**Auto telecontrol**” button at main screen:

User may control the direction with mobile phone.

- Place your mobile horizontal, press ON, then **M1** enter telecontrol mode.
- Tilt your mobile to one direction, **M1** run to the same direction.
- Turn the steer to change direction.
- The direction of roller rolls means the direction of **M1**.
- The number in display board means the current speed.

15.6 Manual telecontrol

- Select manual telecontrol at main screen;

User may control the direction with mobile phone.

- Slide control to ON, enter the manual telecontrol mode.
- Rotate the steer wheel by finger,M1 will follow the direction you steer and run.
- Slide the bar at right hand side to front, that means acceleration.
- Display board at top means the current speed.

WARNING

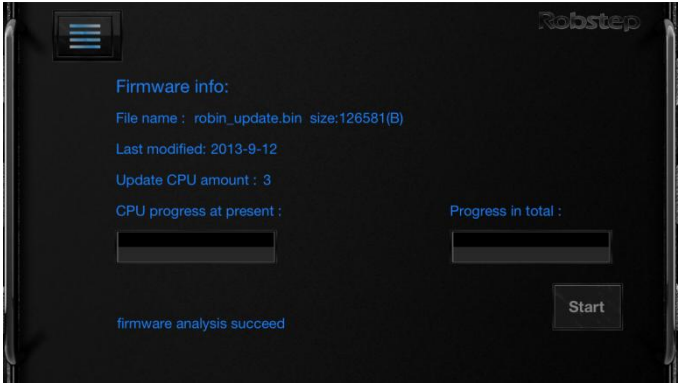
- **Make sure the area for using telecontrol function is clean and clear, friction of the surface must be enough, smooth surface may cause M1 out of control.**
- **When user use auto balance function, please keep some distance with M1, do not touch M1 (M1 must not be loaded), to prevent M1 lose balance and cause accident.**
- **For the first time using telecontrol, please maintain the speed not too fast. Just tilt the mobile a little bit will be fast**

enough.

- **If you would like to quite the program, just slide the bar to OFF or step you foot on the pedal.**

15.7 Firmware upgrade

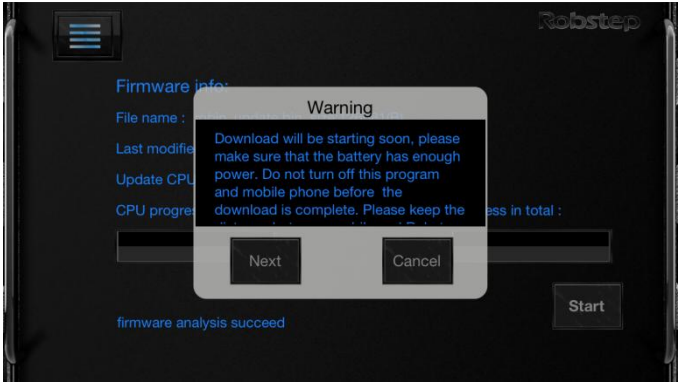
- Press the “Firmware upgrade”button at main screen:

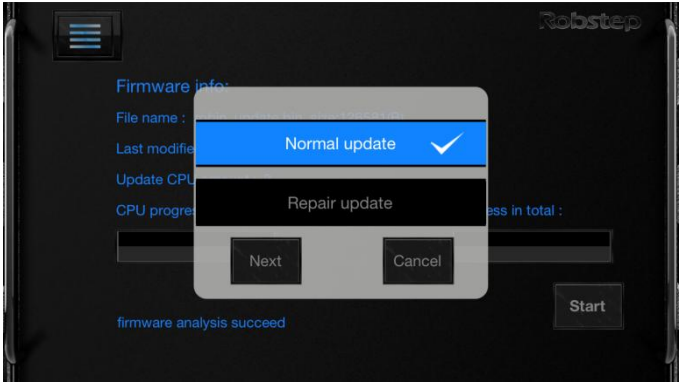


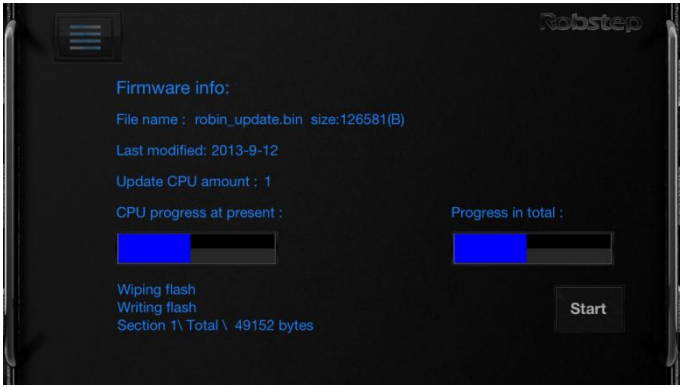
WARNING

- **Before upgrade the system, make sure M1 have more than 40% power and you mobile phone have more than 30%.**
- **Upgrade must be operate when idle, not driving.**
- **Do not turn off the mobile or exit the program during upgrade. Mobile need to be within 5 meters with M1.**
- **M1 may restart automatically after upgrade complete. Please exit the software and reconnect bluetooth.**

- Here is how user use mobile phone upgrade their **M1**:







Firmware download process:

- Connect your mobile with **Robstep** via **bluetooth** and get the Serial Number.
- Send the serial number to **M1** customer service.
- Get the firmware **Robstep update bin** from our staff and copy it to your mobile .
- Reconnect with **M1,** then choose firmware upgrade.
- Select “start downloading”and click next.
- Click normal update, then upgrade start. Software will tell once upgrade complete.

- If **M1** does not restart after upgrade, please restart it by remote control.

NOTE:

Instruction of transfer firmware Robstep_update.bin from PC to IOS devices:

- **Connect iPhone with PC, turn on i Tunes, select your device, click "program" at top menu.**
- **Find "file share" function, select Robstep Tools, "add" Robstep_update.bin file you receive from after sales service department.**

NOTE:

if upgrade fail, please try the follow ways:

- **If the green indication light keep flashing, press "start downloading" directly.**
- **If the green indication light always on or not on at all, please tick "download peripherals controller only" and start download.**
- **If you still could't fix follow by the way above, please contact Robstep customers service.**

15.8 Setting

- Press **"Setting"** at main screen:

Setting provide basic settings, you may change the top speed, rename **M1**, set the firmware version and serial number, set to normal handlebar or short handlebar.

- After changing the top speed limit and name of **M1**, click save to return to main screen.
- After changing the handlebar, user need to change the setting inside robstep tools manually to adjust the performance.

Please refer to short handlebar user manual for further information. **(Experienced of normal handlebar is highly recommended before change to short handle bar)**

- After changing all the info, press the menu button at your android device and click save. Restart **M1** and **Robstep Tools**.

Hope you enjoy the fun of M1

If there is any problem occur, please read through **<M1 Product manual>.** If the Product manual is not able to help you, please log in to **www.robstep.com** or call the hotline:**(0086)0769-26620928** contact our customer service.

Current document version is: **V1.1**

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

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

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.
This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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.

IC RSS warning

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.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

(1) l'appareil ne doit pas produire de brouillage, et

(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

IC Radiation Exposure Statement:

This equipment complies with IC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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

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