

# *B-Free Ranger*

B-Free

Barrier-Free

Let's be free



# Content

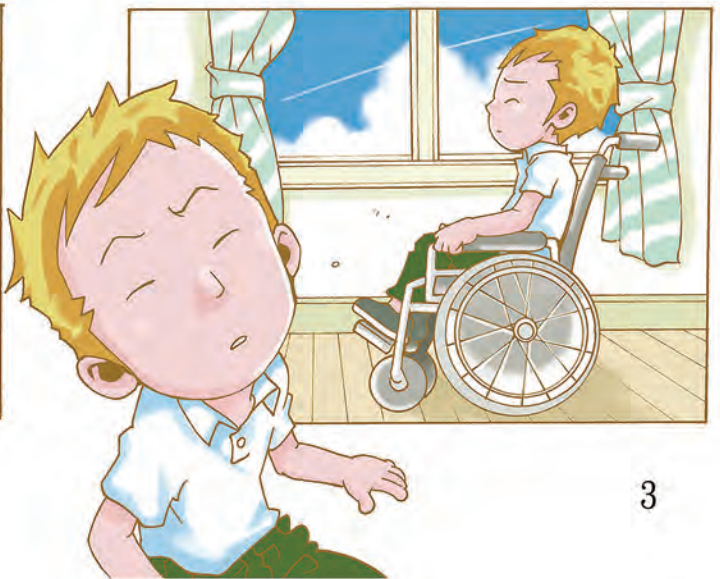
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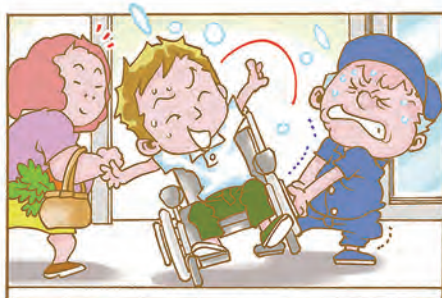


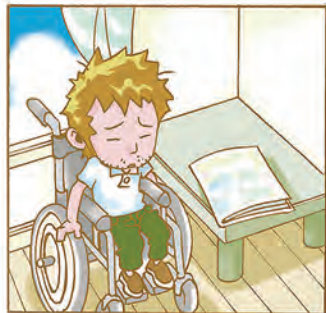
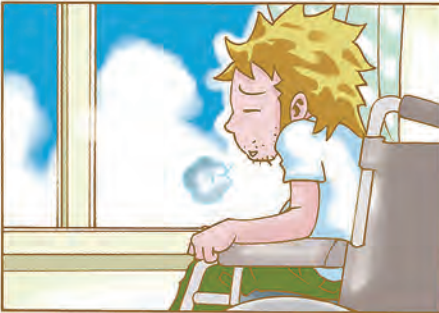
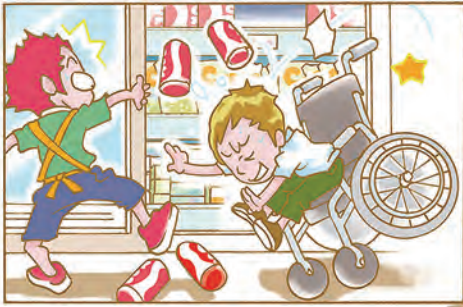
# STORY

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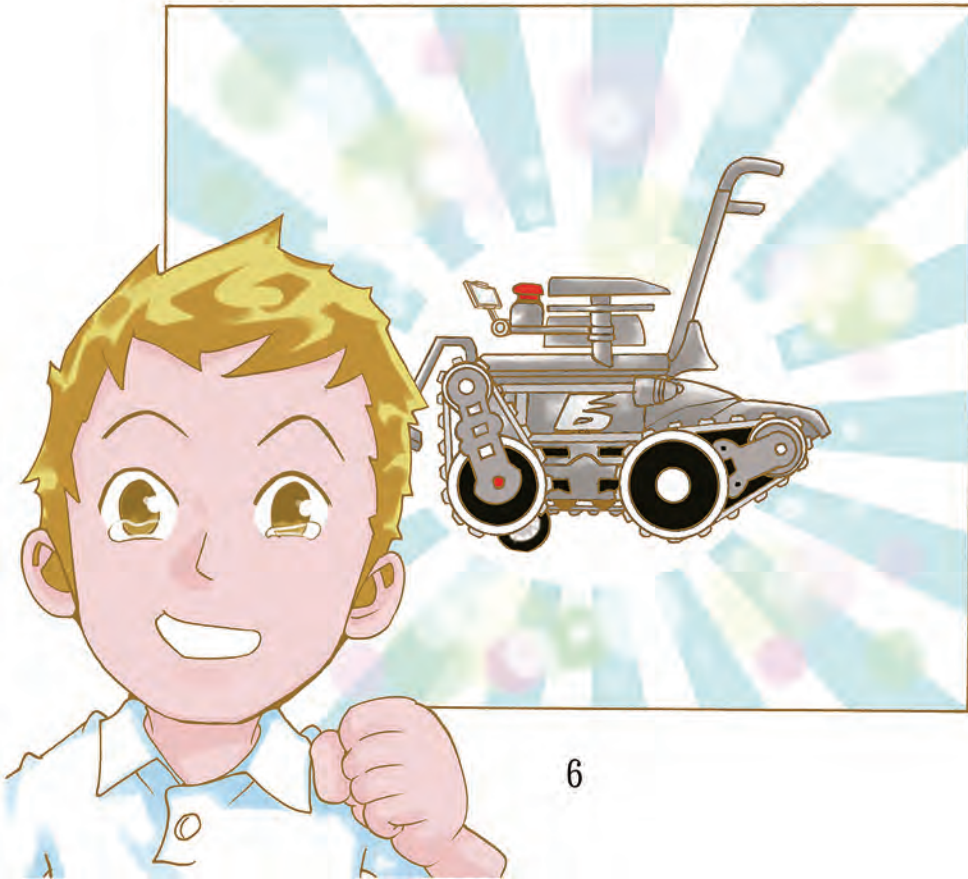
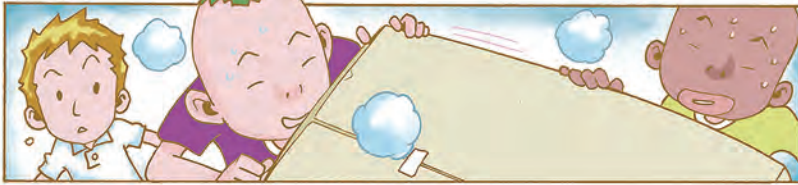


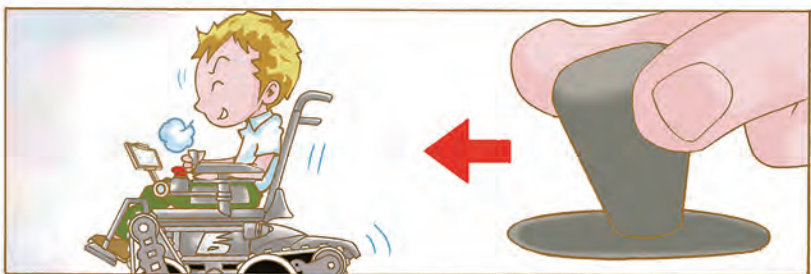
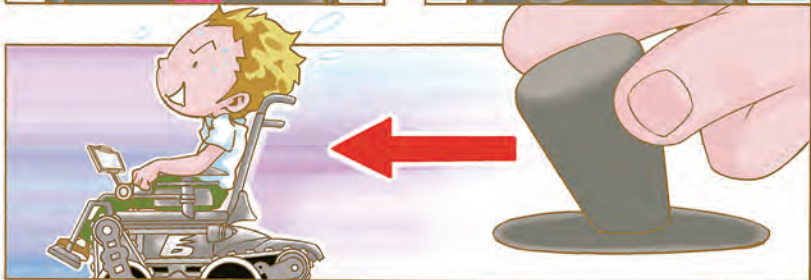
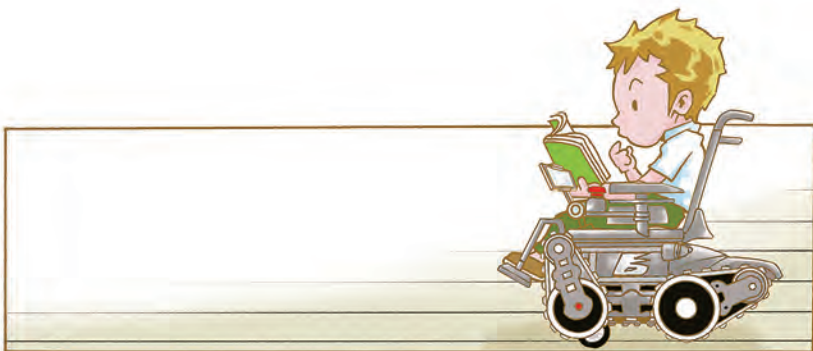




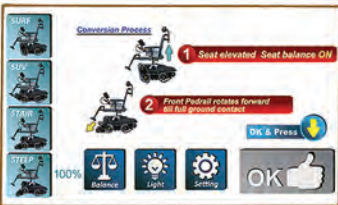
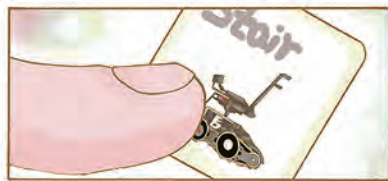
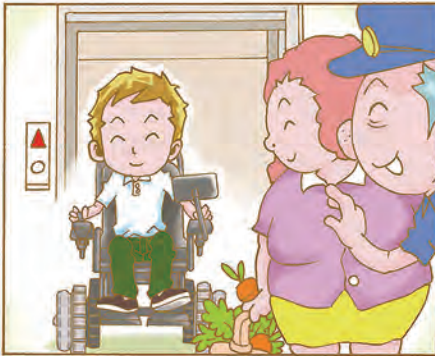


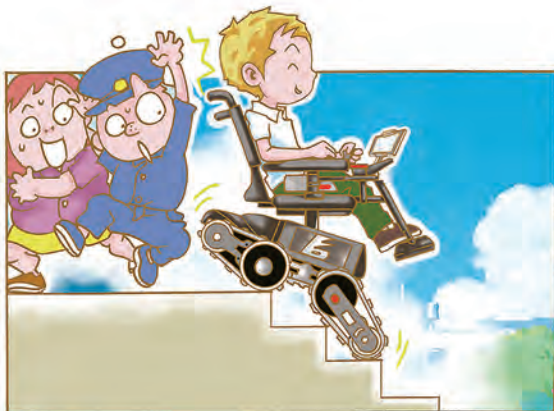
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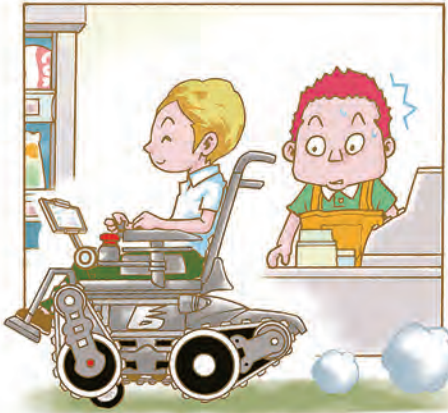


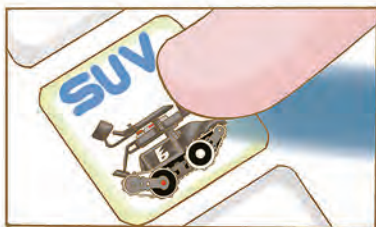
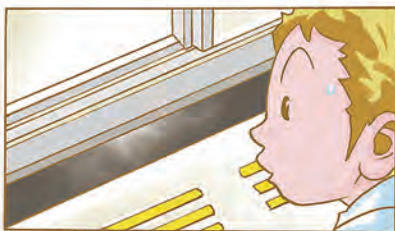


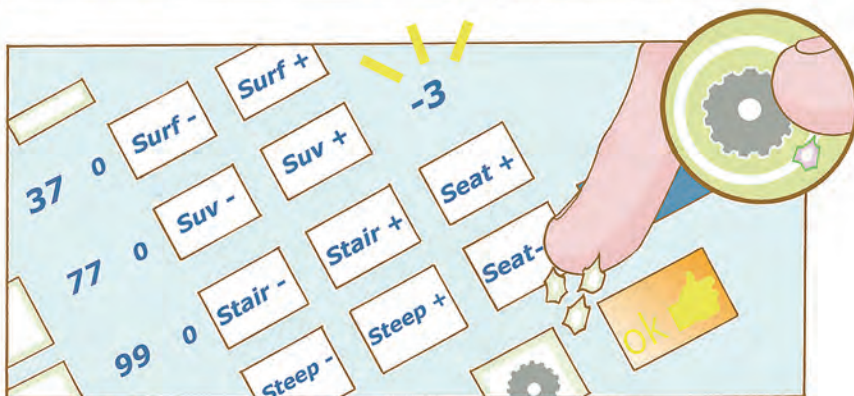
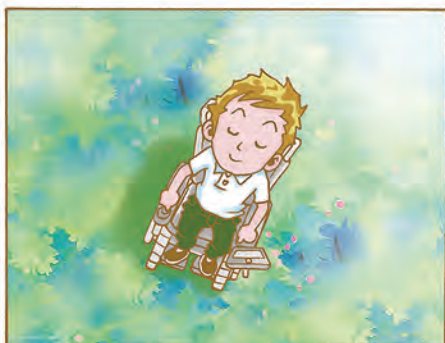


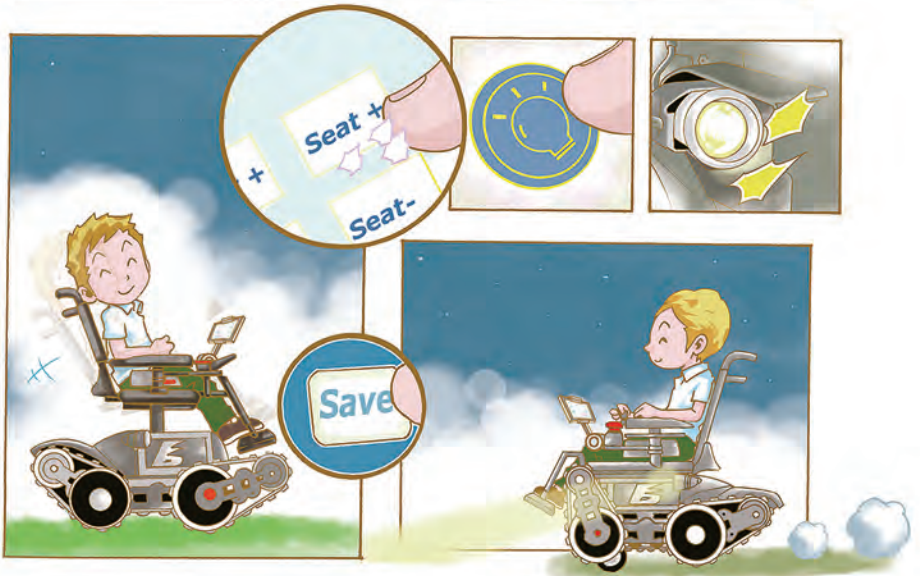
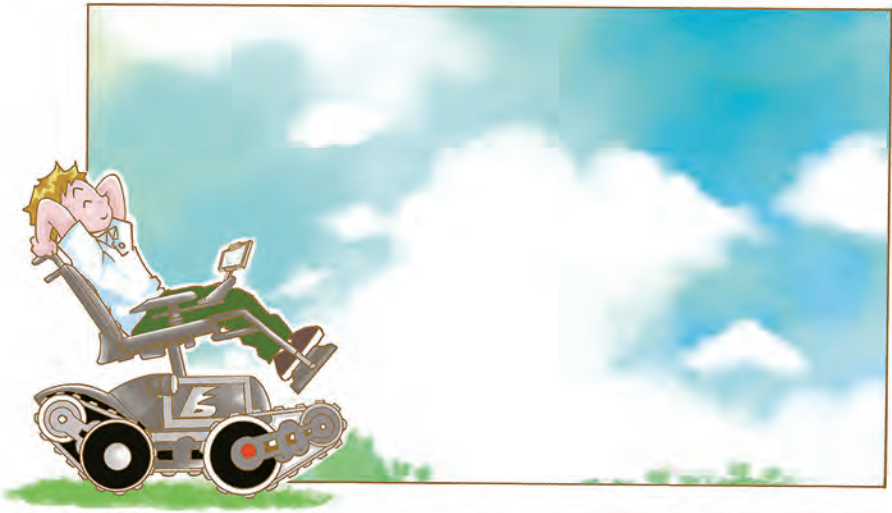


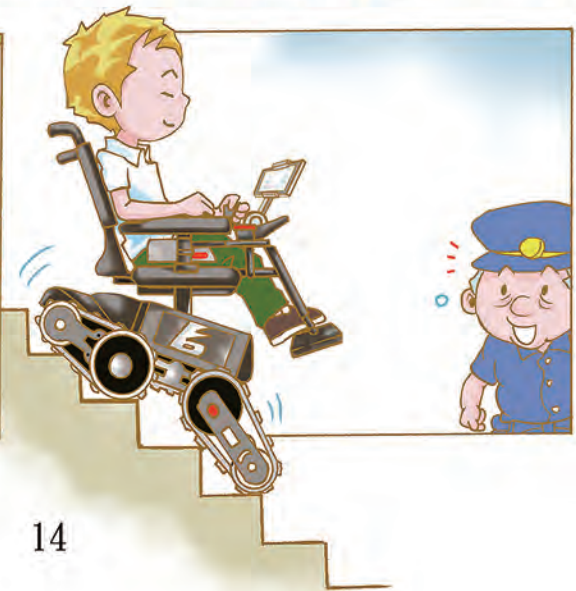
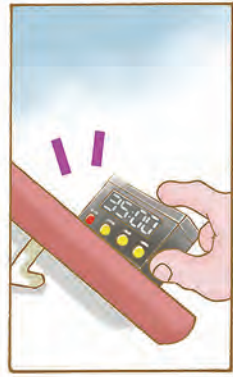
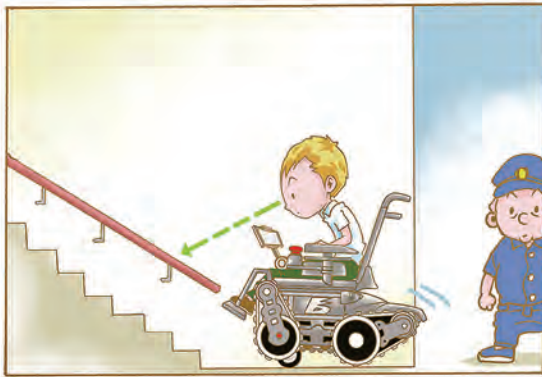


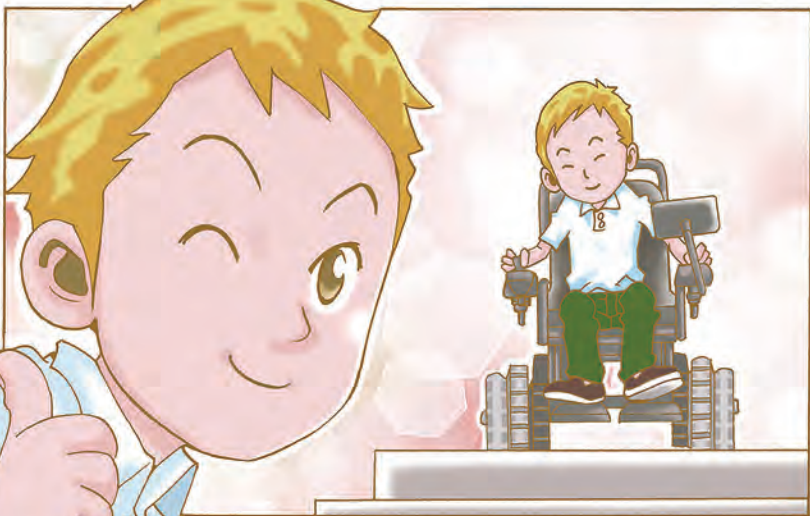
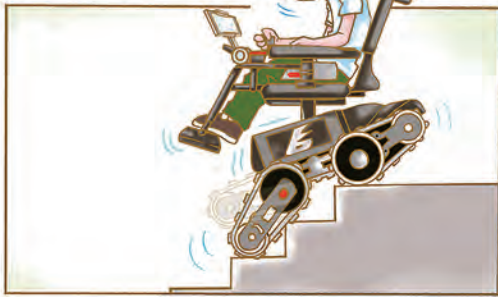
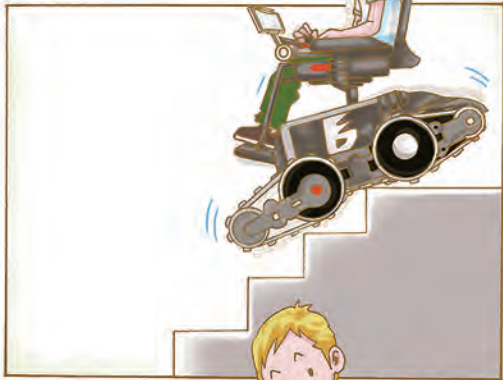














## ***Start / Shutting down***

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## Start Ranger

### Step 1.

Insert key, turn key to align with blue dot to start.

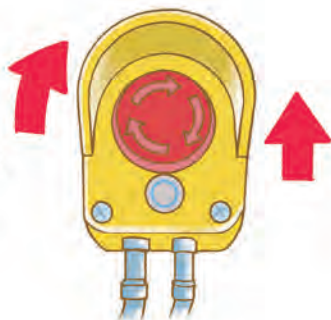


### Step 2.

Once the key is switched to the blue dot; power will remain connect even when the key is removed.

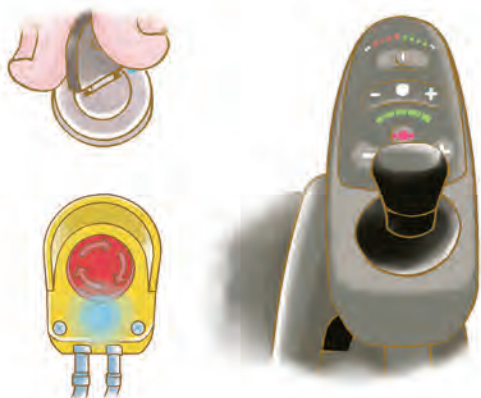
### Step 3.

Turn clockwise the 「red」 button on the 「Emergency Stop Control Unit」, the button will eject and power will be connected.



### Step 4.

When both the key and the 「red」 button is activated, press the on/off switch underneath the 「red」 button and when a blue light comes on, power is now connected.

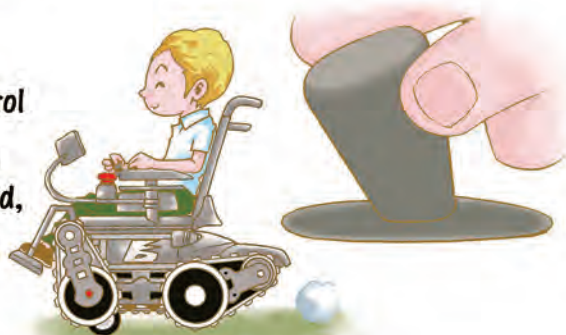


### Step 5.

Press the on/off button on the right hand controller, both the 「power indicator lamp」 and the 「speed indicator lamp」 will lit up.

### Step 6.

You may now use the lever control on your 「right hand controller」 to move in the forward, backward, left and right directions.



3sec

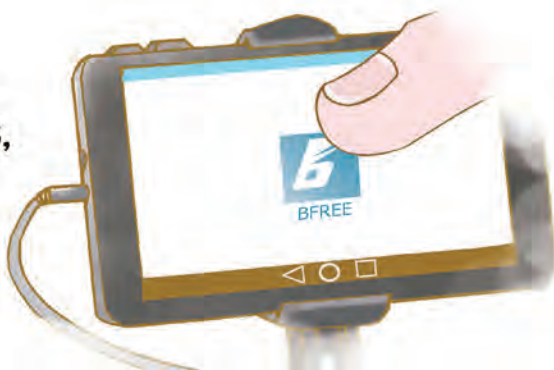


### Step 7.

Press the switch on the side of the tablet PC for about 3 seconds to turn it on.

### Step 8.

After entering the main interface of the tablet PC, please select to start the “B-Free App”.





### Step 9.

Please press "OK"  
to connect the system  
to the B-Free App.

### Step 10.

Please press "OK"  
to connect the system  
to the rear view camera.



### Step 11.

When fully activated, the  
"B-Free App" interface is  
displayed and Ranger's  
"Smart System" is launched.



### Step 12.

Upon engaging the B-Free App, please attempt to turn on the light button first. If the light is on, the B-Free App is connected to the system. If the light is not on, the B-Free App is not connected to the system.

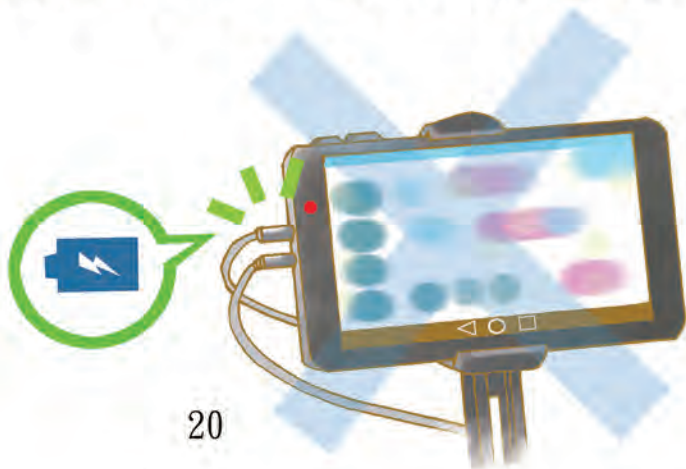


### Step 13.

If the B-Free App is not connected to the system, please delete all browsing history and restart the B-Free App.

### Step 14.

B-free tablet PC is the same as any smartphone. Please do not charge while it is being used unless it is absolutely necessary.



## Shutting down Ranger

### Step 1.

To turn off the 「right hand console」, press the on/off button once, and the 「power indicator lamp」 and the 「speed indicator lamp」 will be off, this means that power is now cut off.



### Step 2.

To turn off the "Tablet PC", press the switch on the side for about 3 seconds until "Shut down / Restart" appears on the screen. Press "Shut down" to turn off the tablet PC.

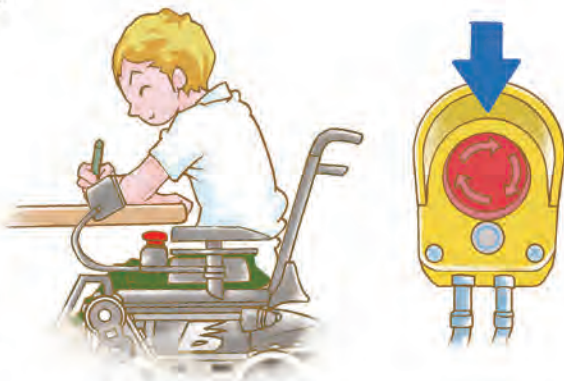
### Step 3.

To simultaneously turn off the left and right "control system", press the small "on/off switch" under the "Emergency stop button" until the blue light goes off which means that the power of the "right controller" and the "smart system" is disconnected.



#### Step 4.

If you intend to have the chair to remain stationary for a prolonged period of time (e.g. working still in front of a desk) we suggest you to press the 「red button」 on the 「emergency stop control unit」 to conserve battery. Main power to the chair will be cut as a result of this action.



#### Step 5.

If an even longer time is required for power cut, we suggest to turn the key from the blue to the red position to ensure complete power cut.

#### Step 6.

Remove the key and depart.



# RULES

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## Rule 1. Mode switching rule (1)

1a.

Ranger has four operation modes. Ranger **MUST** be stopped for any mode switching. Mode switching while driving is strictly prohibited.



1b.

In order to pack all superb functions in its compact size, Ranger's chassis is fully occupied with mechanical parts leaving little space for storing the pair of caster wheels.



1c.

If mode switching happens when Ranger is in motion, especially from "Surf Mode" to others, the caster wheels may get stuck at other mechanical parts to cause mechanical damages.

1d.

Other conditions and mishaps such as unexpected obstacles and sudden appearance of passerby may make mode switching when Ranger is in motion dangerous and is strictly prohibited.



## Rule 2. Mode switching rule (2)

### 2a.

Mode switching is the mechanism of positioning the front pedrails. If such positioning is not accurate, mode function can be detrimentally affected. The user must therefore pay attention to ensure the mode positioning is accurate.



### 2b.

The set of numbers at the bottom left of the screen is the percentage of mode switch completion. If the value does not reach 100%, mode switching is not yet completed.



### 2c.

When the value reaches 100%, the mode button light will be turned on, indicating that mode switching is complete.



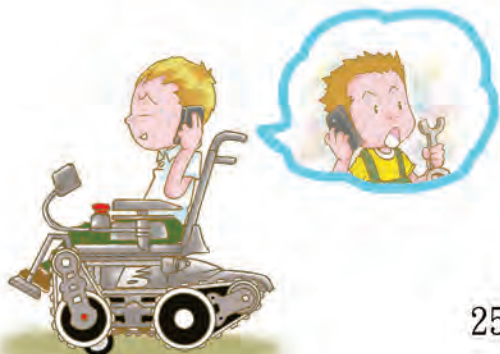
### 2d.

If mode switching fails or is incomplete, stair-climbing is risky and is prohibited.



### 2e.

If such error occurs frequently, the distributor must be informed for maintenance services.



### Rule 3. Mode switching rule (3)

**3a.**

The speed on the right control panel must be adjusted accordingly for different mode selections.



**3b.**

Speed “1” and “2” are specifically programmed for stair-climbing. They are formulated to slow down the climbing and steering speed but maintaining climbing power to ensure stair-climbing and obstacle negotiation safety.



**3c.**

Speed “2” is faster and more powerful than Speed “1”. If stair-climbing power is insufficient, the user may adjust the Speed to “2”.



**3d.**

The user must therefore adjust the Speed to “1” or “2” while mode switching to “Stair Mode”. Other Speeds must not be used while stair-climbing to prevent accident.



### 3e.

If likely to be forgetful, the user may request for automatic Speed “1” or Speed “2” selection upon mode switching to “Stair Mode” and “Steep Mode” from the distributor.



### 3f.

Inevitably, this will also slow down the speed of driving up/down slope and over obstacles when “Stair Mode” and “Steep Mode” are required. The user will have to decide the pros and cons!

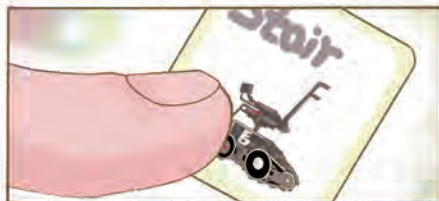


## Rule 4. Mode switching rule (4)

4a.

Upon pressing the “Mode” key, the key light will flash. Simultaneously, pictures showing the mode switching to, mode switching procedure and attentions required will rotate every 3 seconds

(the diagram shows such mode switching to “Stair Mode”).



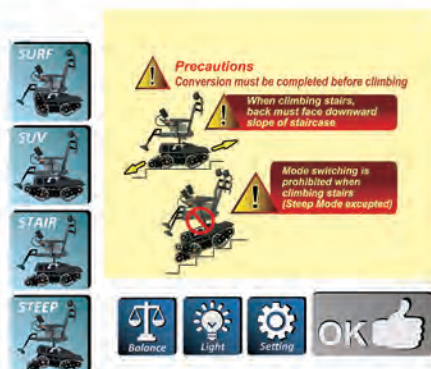
4b.

The user must carefully study the pictures to confirm that the mode selection is correct before pressing the “OK” key to activate the mode switching process.



4c.

If the user changes his/her mind or wishes to abort mode switching, he/she just has to press the main screen, the “Balance” key or any “Mode” key to immediately abort the mode switching process.





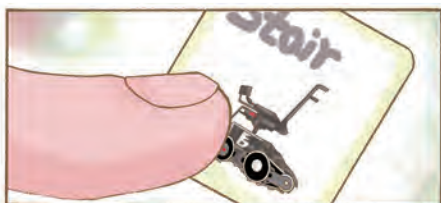
暫停  
(模式轉換未完成)

4d.

When the switching process is aborted, the “%” in the lower left corner of the screen will change to display “Pause (mode switching is incomplete)”.

4e.

Press “OK” to continue mode switching.



4f.

To switch to another mode, choose and press the mode button before pressing “OK”.

## Rule 5. Surf Mode rule

5a.

Upon switching to “Surf Mode”, Ranger is more agile and drives more comfortably with the 4 wheels as the pedrails are not in contact with the floor anymore.



5b.

As Ranger’s chassis is already fully occupied with mechanical parts, it can only house a pair of smaller caster wheels.



5c.

The smaller caster wheels may become relatively unstable on rough terrain and may even fall into drainage gaps or any other gaps on the road.



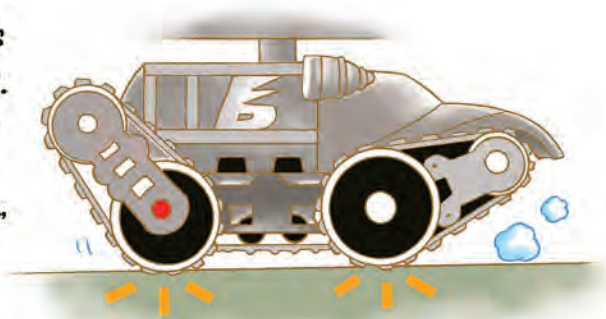
5d.

“Surf Mode” is therefore only suitable for smooth terrain. The user must switch to use “SUV Mode” upon encountering rough terrain.

## Rule 6. SUV Mode rule (1)

6a.

Upon switching to “SUV Mode”, Ranger’s front and rear pedrails are in full contact to the ground. Due to floor material suitability for pedrails, there are certain limitations of where “SUV Mode” can be used.



6b. For example, loose carpets may be rolled up and damaged by the pedrails.

6c. The pedrails are designed to increase friction to the floor surface for gripping power, hence may scratch and mark some smooth and shiny floor tiles.

6d.

Since the pedrail is designed to have a width of only 4 cm, it does not have the wide enough surface area to avoid sinking and being stuck on soft grounds such as snow, beach and muddy roads.



6e.

Although tough hybrid rubber is used for our pedrails, they could however be easily cut and damaged by sharp objects. Escalator, roads with sharp stones, sharp edges, spikes, nails and any other sharp objects must be avoided.

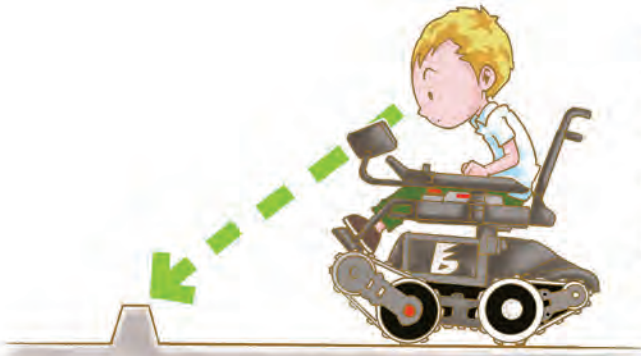




## Rule 7. SUV Mode rule (2)

7a.

Since the height difference between the outer pedrial and the inner pedrail is 5 cm, the wheelchair may become unstable or undulated if the obstacle is over 5 cm in this mode.



7b.

The user must be responsible to visually assess the height of the obstacle, just like driving a normal wheelchair.

7c.

When the obstacle is believed to be exceeding 5 cm or if there is any doubt, the user must be responsibly switching to use the “Steep Mode” for crossing.



## Rule 8.

### Common rule of “Surf Mode” and “SUV Mode” (1)

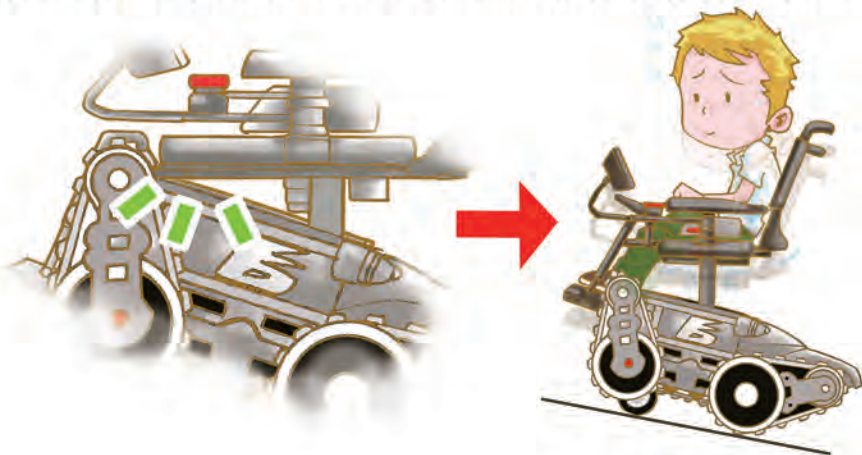
8a.

Upon switching to both “Surf Mode” and “SUV Mode”, the seat is programmed to maintain horizontal and descend to its lowest level.



8b.

If such mode switching carries out on a slope, the lowered seat will press onto the batteries in the front or the protecting cover at the back.



8c.

Other than damaging the chassis, the seat actuator will also be impaired.



## Rule 9.

Common rule of “Surf Mode” and “SUV Mode” (2)



9a.

Most slopes on the road are less than 10 degrees and are therefore safe for both “Surf Mode” and “SUV Mode”.

9b.

As there are no wheelchair anti-tips installed, Ranger may risk tipping backwards on slopes.



9c.

When using these two modes, the user must therefore activate the “Seat Balance” system to ensure the seat maintains horizontal and safe while climbing slopes.



## Rule 10.

### Common rule of “Surf Mode” and “SUV Mode” (3)

#### 10a.

Before driving into the desk with either “Surf Mode” or “SUV Mode”, the Tablet must be switched off.



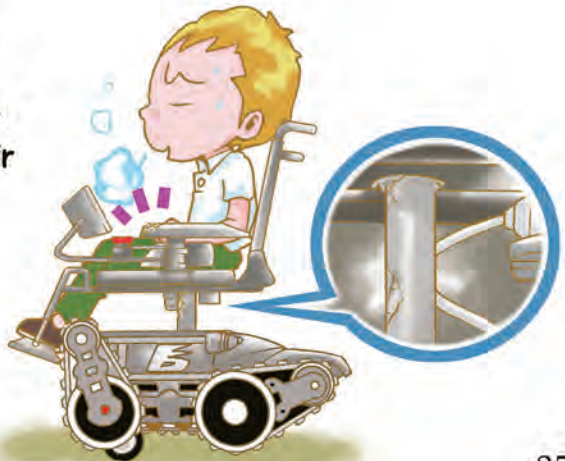
#### 10b.

Ranger is equipped with a highly responsive “Seat descending anti-crush device”. The seat may be unintentionally elevated if the responsive sensors are accidentally touched while Ranger is in the desk.



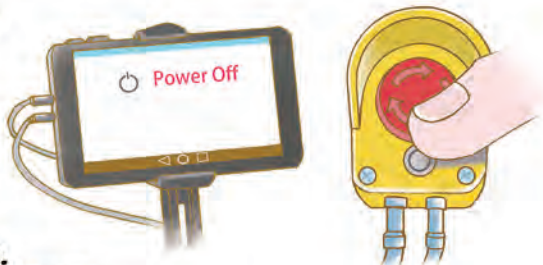
#### 10c.

Although such unintentional seat elevation will not cause injury to the user as the pair of armrests will hit the underneath surface of the desk first, this may still damage the armrests and the seat actuator.



### 10d.

Do not mistaken that the smart sensing system could be disabled by turning off the “B-Free App” or by pressing the small “on/off switch” to switch off the screen. The smart sensing system will still be functioning in this situation.



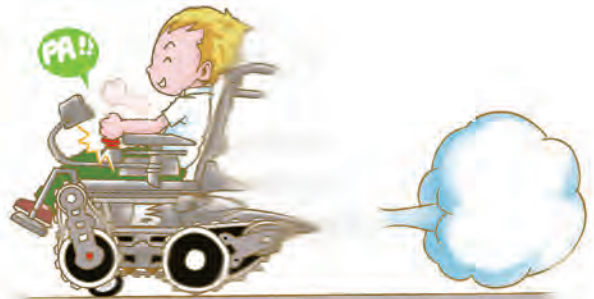
### 10e.

Such arrangement is to prevent risk to the user due to failure of the system if the “B-Free App” and/or the screen be accidentally turned off while stair-climbing.

Rule 11. Common rule of “Surf Mode” and “SUV Mode” (4)

11a.

If the “Emergency Stop” button is pressed while moving at high speed in “Surf Mode” or “SUV Mode”, Ranger will abruptly brake due to sudden power cut.



11b.

The user’s body will be vigorously thrown forward due to such sudden stop, possibly causing severe injuries.



11c.

Therefore, the user **MUST** always fasten the seat belt and try not to press the “Emergency Stop” button while driving on high speed unless it is an emergency.



## Rule 12. Stair Mode rule (1)

### 12a.

Before climbing the stairs, the user must make sure that mode switching to “Stair Mode” is completed and the Speed is adjusted to “1” or “2”.

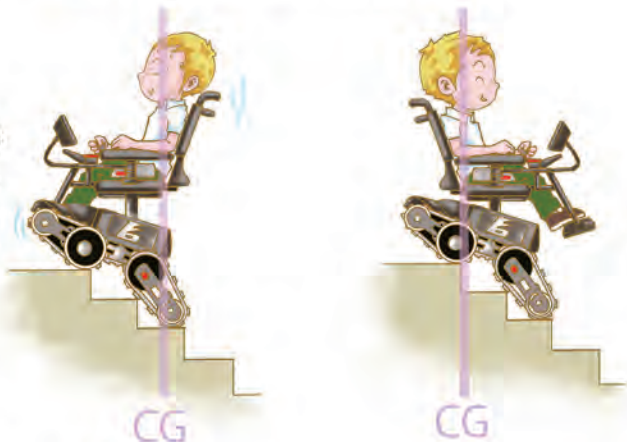


### 12b.

The absolute rule of stair climbing, either using “Stair Mode” or “Steep Mode”, is the most convenient and safest backward-facing position when climbing up stairs and forward-facing position when climbing down stairs. This rule **MUST** be strictly followed by all users.

### 12c.

The main reason is that the body’s centre of gravity is naturally backward leaning when one is sitting in a chair. Forward-facing to climb up stairs will risk backward toppling easily.



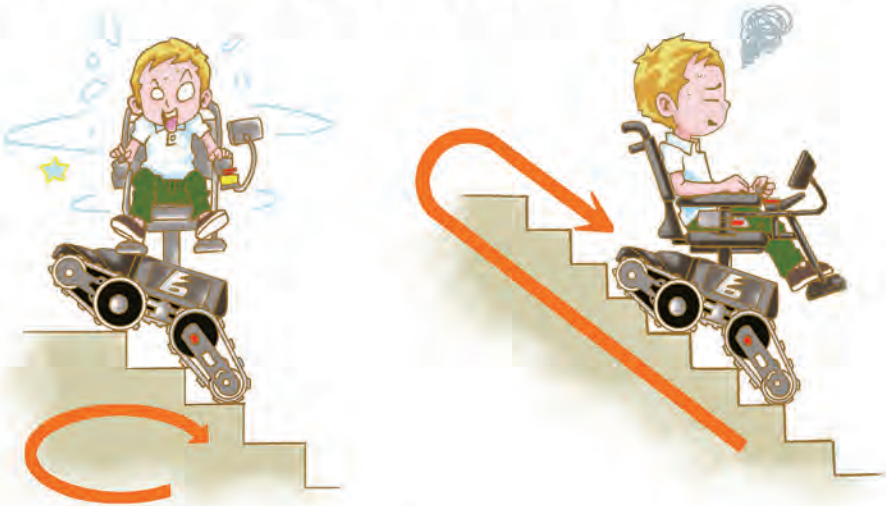
12d.

Another drawback of forward-facing to climb up stairs is that if the user needs to come back down from midway of the stairs, reversing to climb down the stairs will surely topple the whole unit backward down the stairs due to backward shift of the centre of gravity!



12e.

It might seem possible to pivot the seat around but this will be extremely scary to the user and mechanically unsafe! Users will certainly be sick and tired if they have to complete going up the whole staircase before they can return back down every single time.





## Rule 13. Stair Mode rule (2)

13a.

During stair-climbing, the user must steer properly to prevent sideways tilting to avoid accident.



13b.

The maximum safe stair-climbing inclination is set to 35°. Any stair inclination exceeding 35° is unsafe for Ranger to climb and must be refrained from to prevent accidents.



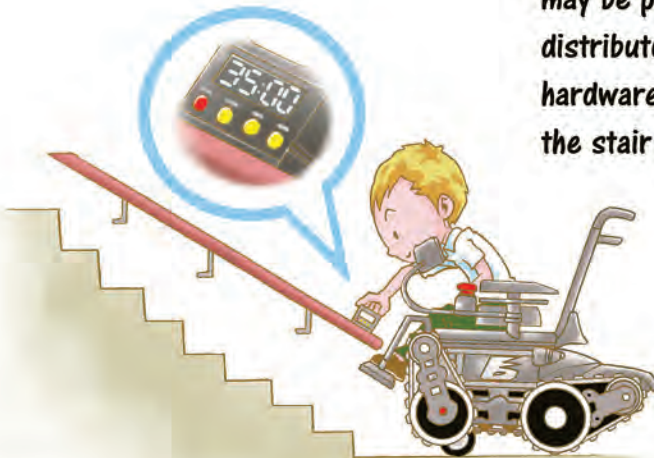
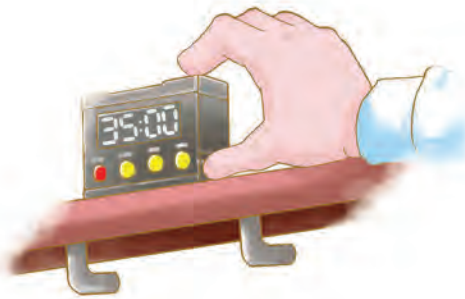
13c.

In other words, when backward-facing climbing up stairs, if the backward seat swing angle reaches its maximum that the seat is no longer horizontal and is beginning to tilt forward, this indicates that the stair inclination has reached the stair-climbing limit. The user **MUST** stop climbing up and return to safe ground.



13d.

Similarly, if the front pedrails are found unable to reach the stair tread surface even if “Steep Mode” is used, the user **MUST** stop climbing down the stair and must reverse the wheelchair back to safe ground.



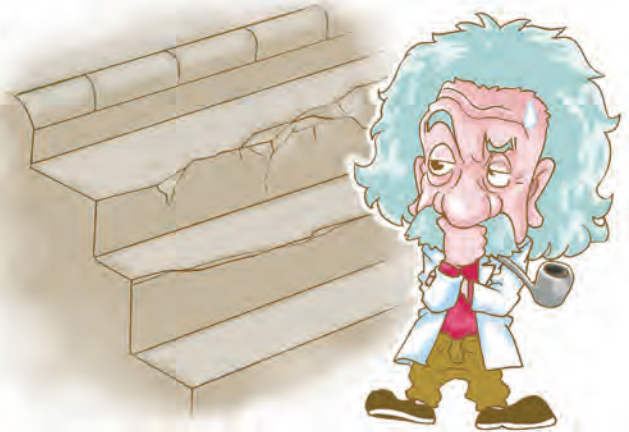
13e.

If the user is not confident enough in eyeballing the stair-inclination, a digital inclination measuring device may be purchased from the distributor or from any hardware shops to measure the stair angle accurately.

## Rule 14. Stair Mode rule (3)

### 14a.

Although Ranger is able to climb a maximum of 35 degrees inclination, other undetectable factors and uncertainties such as friction and damage of the stair nosing, material used, stain and grease etc. may also affect its stair-climbing ability.



### 14b.

Therefore, when encountering a staircase that has never been attempted before, the user should attempt climbing up first.

14c.

As Ranger's pedrails are uniquely designed, the pedrails will slip and slide to prevent them to climb those unsuitable stairs so as to avoid accidents.



14d.

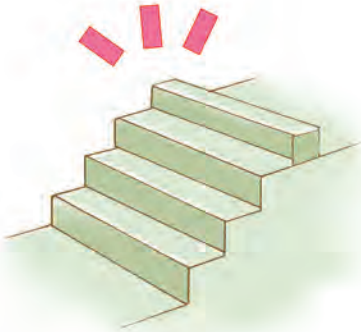
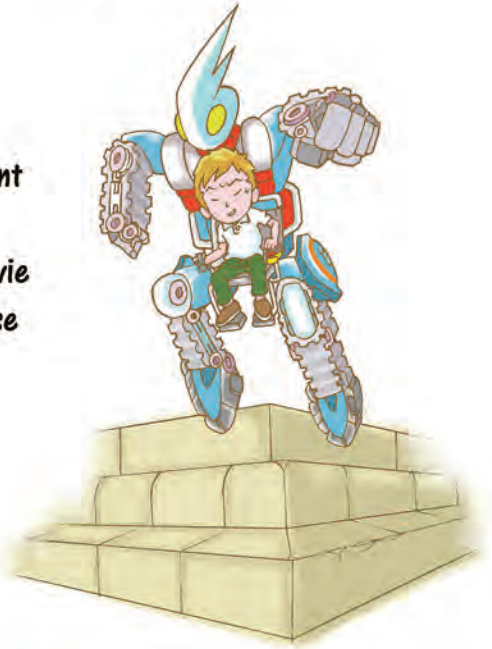
In other words, if Ranger can comfortably climb up the staircase, it can climb down the same safely.



## Rule 15. Stair Mode rule (4)

### 15a.

There are many stairs of different size and shapes. We may truly need a transformer from the movie to be able to negotiate all of these different types of stairs.



### 15b.

One of these strange staircases is one that has a hump at the very top of the staircase. It looks like a step but is actually a road hump acting as an obstacle.

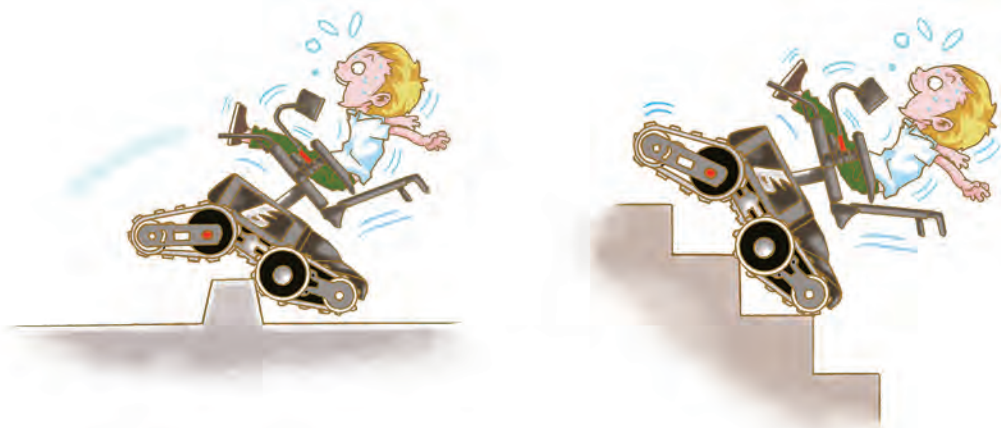
### 15c.

The user must not be misled by such hump as a normal step and continue to drive over it backward.



**15d.**

As this will be the same as climbing down stairs or over obstacles backward and is strictly prohibited.



**15e.**

Upon encountering such staircase, the only way is to abort the climbing attempt and return to safe ground.



## Rule 16. Steep Mode rule (1)

16a.

All “Steep Mode” rules are the same as “Stair Mode” rules.



16b.

The reason for using “Steep Mode” is not because of the steeper staircase but is because of poor construction arrangement to have the first and/or the last step particularly steep or wide. The user may have an empty/floating feeling when encountering such step while using “Stair Mode”.

16c.

Such situation may easily and safely be solved by switching to use the “Steep Mode”.



### 16d.

Since the front pedrail angle is larger in “Steep Mode”, the pedrails have less contact area to the stair. If the stairs are wet and/or have round nosing/edge, the pedrails will slip and slide to prevent further climbing.



### 16e.

If so, the user may switch to use “Stair Mode” to gain more contact area for the pedrails for more gripping power.

**(N.B. Mode switching on stairs is ONLY limited to “Stair Mode” and “Steep Mode”. Mode switching to any other modes is strictly prohibited!)**



## Rule 17. Steep Mode rule (2)

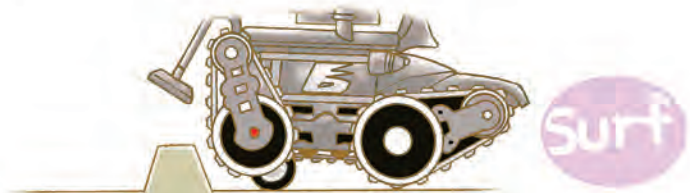
17a.

Another function of “Steep Mode” is to negotiate obstacles. However, confronting the obstacle head on with high speed is strictly prohibited.



17b.

The user should approach with “Surf mode” or “SUV Mode” and stop and align right in front of the obstacle.



17c.

The user may then switch to use “Steep Mode”. As Ranger is transforming from “Surf Mode” to “Steep Mode”, the front pedrails act like legs to step over the obstacle to ensure easy crossing.



## Rule 18. Slope climbing rule

18a.

While travelling up and down the slopes, the user's body would naturally be tilted backward or forward in a normal wheelchair. If the slope is too steep, the tilting angle could exceed a limit to risk toppling the user out of the seat.



18b.

Equipped with our smart “Seat Balancing System”, Ranger’s seat is designed to have a 25° maximum forward tilt and a 35° maximum backward tilt.



18c.

That is, the user may safely climb a maximum of 25° forward facing an upward slope as long as the stronger floor gripping ability “SUV Mode” is selected to prevent backward sliding with the “Seat Balancing System” switched on.

18d.

Any slope exceeding 25° **MUST** be regarded as stairs and “Stair Mode” or “Steep Mode” must be selected to climb up in a backward facing position and down in a forward facing position.



## Rule 19. Emergency Stop button application rule

19a.

In any emergency situation when Ranger is out of control such as failure of the right controller, mode switching error, seat balance failure etc.



19b.

Since the consequences of such emergency situation are unpredictable, the "Emergency Stop" button must be pressed immediately if the user senses anything unusual about the wheelchair.



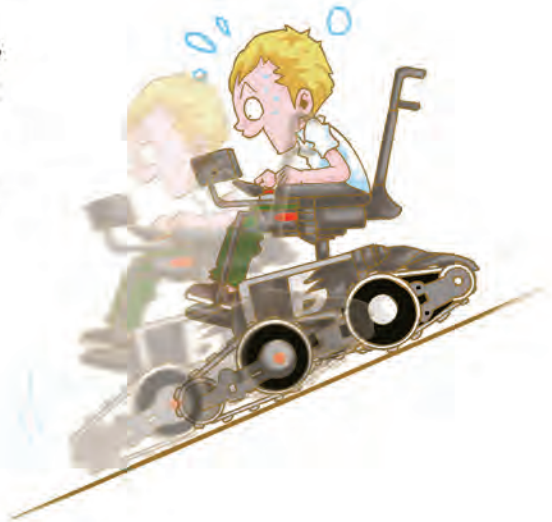
19c.

Since Ranger uses a special "power failure safe mode" design, all functions and mechanical parts will stop and be locked at the moment of power cut. In normal circumstances, it will stop firmly and remain in its exact position when the "Emergency Stop" button is pressed.



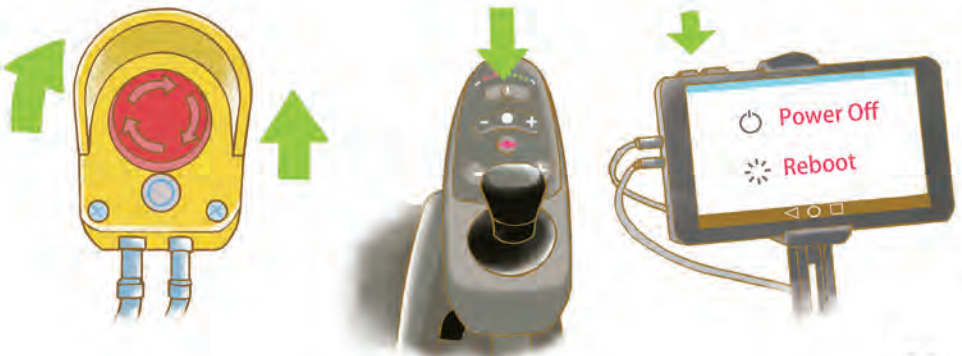
19d.

If the right Controller and the left Control Panel were to be activated at the same time while the “Emergency Stop” button was released, hazardous situations could occur again.



19e.

Therefore, both the right Controller and the left Control Panel use an independent self-reset switch design to ensure that they remain off while the “Emergency Stop” button is released.



19f.

It would be an awful design fault if the “right controller” could be activated without the “smart system” during stair-climbing because it would mean that Ranger could be dangerously climbing the stairs without the balancing system.



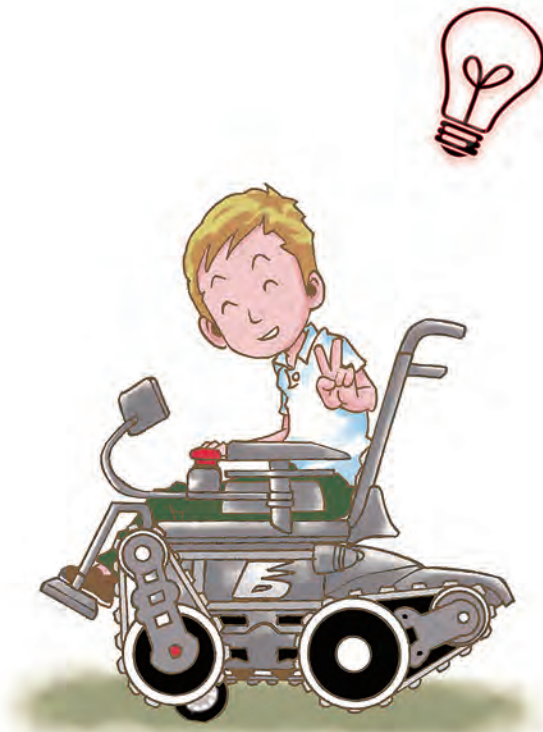
19g.

Therefore, after releasing the Emergency Stop Button, the user must press the small “on/off switch” under the “Emergency stop button” to activate the “smart system” before the “right controller” could be re-activated.



# TIPS

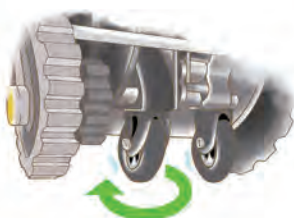
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## Tips 1. Mode switching tips

1a.

In order to prevent the caster wheels being stuck to other mechanical parts underneath the chassis.



1b.

Before mode switching from “Surf Mode” to any other modes, Ranger may be reversed a little to allow the pair of caster wheels to spin to the appropriate positions to avoid contacting other mechanical parts underneath the chassis.

1c.

If the caster wheels are still stuck to other mechanical parts underneath the chassis during mode switching or if there are other foreign materials entering the compartment to prevent completion of mode switching.



**1d.**

**Warning signal and beeping sound will appear on the Tablet.**



**1e.**

**All the user has to do is to follow on-screen instructions to switch to the original mode and to slightly reverse and adjust Ranger's position before attempting another mode switching.**





## Tips 2. Use of the “Balance” key



**2a.**

The “Balance” key is programmed to remain on at “Stair Mode” and “Steep Mode” and cannot be switched off even if it is accidentally pressed.

**2b.**

In “Surf Mode” and “SUV Mode”, the user may switch the “Balance” key on or off at will. Once the “Balance” key is switched on, the seat will rise and the Seat Balance System is activated.



**2c.**

Other than keeping the seat horizontal while climbing slopes, the elevated seat gives the user a natural standing view and enables the users to reach for higher objects more easily.

**2d.**

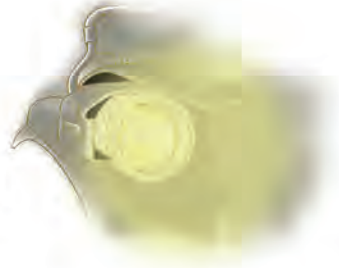
Upon cancelling the “Balance” key, the seat will descend to its lowest and the Seat Balance System is de-activated.



## Tips 3. Use of the “Light” key

### 3a.

At the very first time the “Light” key is pressed, Ranger’s headlights by the sides will be lightened with bright light.



### 3b.

At the second time the “Light” key is pressed, Ranger’s headlights by the sides will be lightened with dimmed light.



### 3c.

At the third time the “Light” key is pressed, Ranger’s headlights by the sides will be lightened with flashing light. This acts as hazard warning lights as for cars to alert others for help or to stay away.



## Tips 4. Use of the “Setting” key

4a.

The “Setting” key is mainly for service technicians. But if the user knows how to use it, it will certainly help to bring a lot of convenience and fun.



4b.

The user may activate the “Balance” key and then press the “Setting” key.

4c.

When the “setting” page appears, the user may adjust to tilt the seat forward or backward by pressing the “seat +” or “seat -” key.



4d.

If the seat is backward tilted, the user may enjoy the comfortable reclining position like relaxing out in the park.



4e.

After the enjoyment, the user must remember to restore the seat to its normal horizontal position.

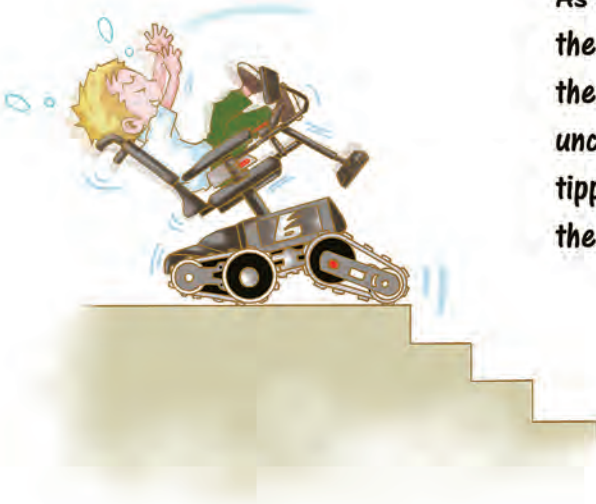
4f.

Although such reclining position is rather comfortable for the user, it has hidden dangers.



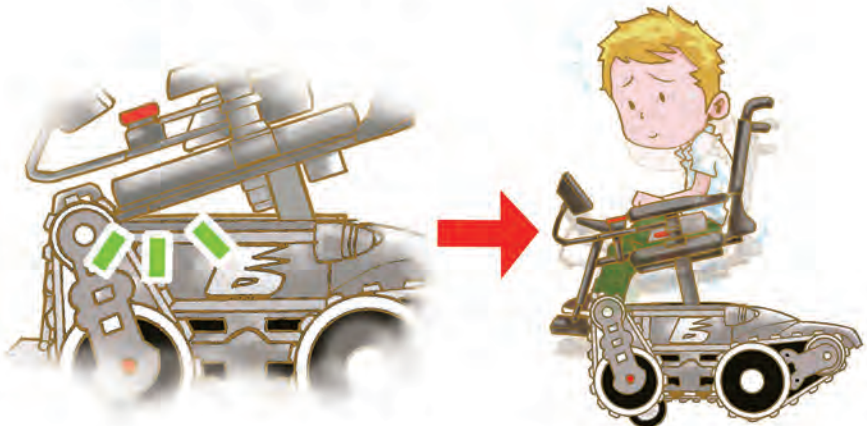
4g.

As such reclining position shifts the centre of gravity backward, the user may experience an uncomfortable sudden backward tipping feeling when reaching the top of the stairs.



4h.

Furthermore, if the seat is not horizontal, it will press against the chassis when it is lowered.



## Tips 5. Speed indicator

### 5a.

The 5 lights sequentially indicate 5 speed levels and is adjusted by pressing + or - (1 light represents the slowest speed level 1 and 5 lights represents the highest speed level 5). One more press of + at speed level 5 will change the speed straight to level 1. In the opposite, one more press of - at speed level 1 will change the speed straight to level 5.



### 5b.

Speed "1" and "2" are specifically programmed for stair-climbing. Speed "2" is faster and more powerful than Speed "1". The user may select the appropriate Speed at will.

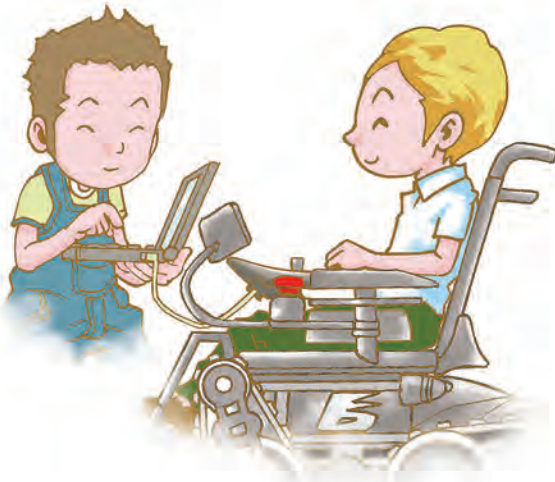
### 5c.

Speed "3" to "5" are specifically programmed for driving on smooth terrain. Speed "5" is faster than Speed "3". The user may select the appropriate Speed at will.



**5d.**

**While driving, the user may select the appropriate Speed by pressing + or - .**



**5e.**

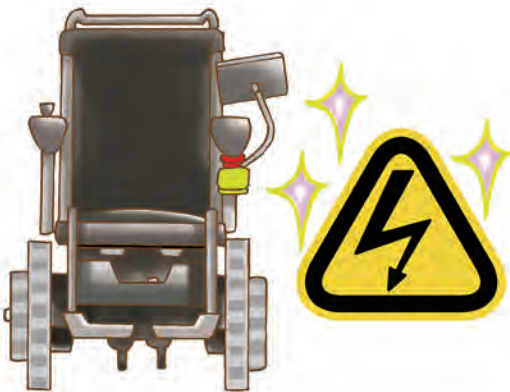
**If necessary, the user may request the distributor to alter the software programming for individual needs.**

## Tips 6. Battery power indicator

6a.

Battery power is indicated by 8 lights (4 red lights and 4 green lights).

Battery power is full when all 8 lights are on.



6b.

One must be reminded that Ranger uses the more powerful “Lithium iron Battery” that it has higher voltage than other wheelchairs after a full charge.

6c.

Thus far, all controllers are designed for normal wheelchair batteries.

There is yet no specifically designed controller that may detect Lithium iron battery power level.





6d.

Because of its higher voltage, the Lithium iron battery power level may have to drop to almost half before being detected by the controller. In other words, when the battery power indicator drops to 7 lights, the Lithium iron battery power level may have already dropped below half.



6e.

If the Battery power indicator drops to 4 lights, the actually battery power level may only be able to continue Ranger's function for a few more minutes.

6f.

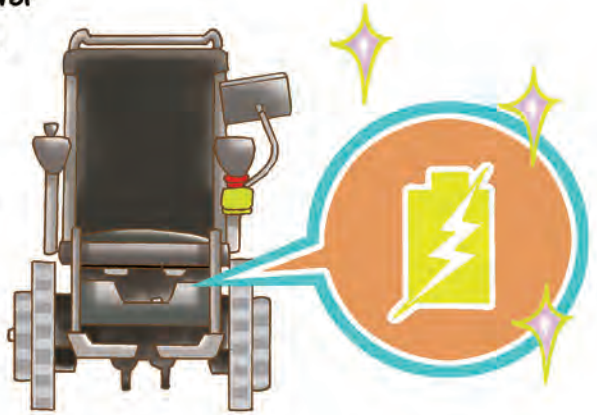
If necessary, the user may request the distributor to install an additional Lithium iron battery power level detector.



## Tips 7. Battery maintenance

### 7a.

Ranger uses high quality/power “Lithium iron Battery” which has higher durability and safety to other batteries. Unfortunately, most people have poor battery maintenance knowledge, resulting in much shortened battery life.



### 7b.

Batteries should not be overcharged or left uncharged till exhaustion. These will cause chronic damage to the batteries. If it has to be left idle for a long time, it must be fully charged every 45 days.



### 7c.

The best is to fully charge the battery when the battery power indicator drops to 6 or 7 lights, i.e. when actual battery power level drops to 30% to 40%.



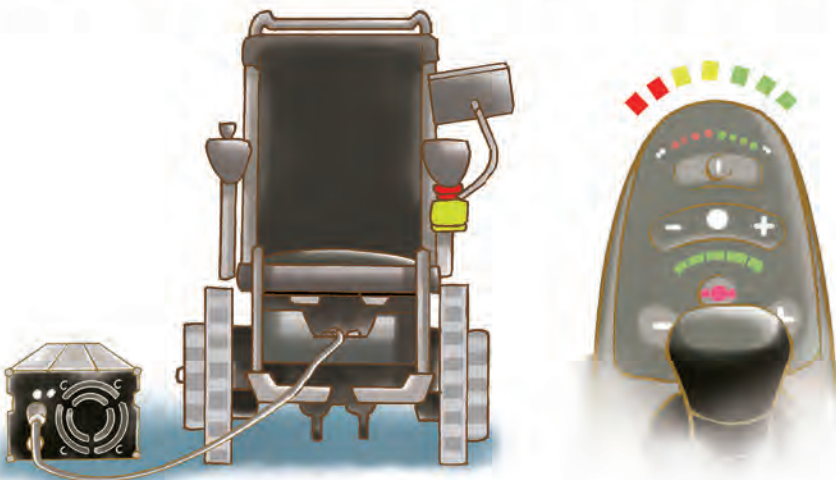
**7d.**

When the charger's indicating light turns off or when the radiator fan stops, battery charge is complete and it is best to unplug the power as soon as possible.



**7e.**

According to international certification requirements, wheelchairs are prohibited from driving while charging. Therefore, Ranger is programmed not to be activated when the joystick is tampered while charging. If it happens, the "Setting" light will flash to indicate that safe mode is activated.



## Tips 8. Pedrail maintenance

8a.

Ranger has 3 pedrails on each side, a total of 6 pedrails. They are specially designed for stair-climbing and are therefore rather expensive. They have to be properly maintained to ensure optimal durability.



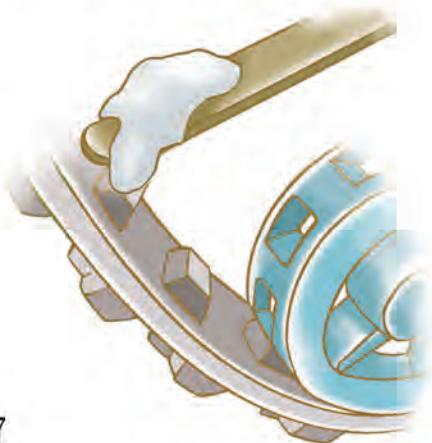
8b.

The transmission force of the pedrail is driven by the intertwine of its inner teeth and the special wheel shell. Inner side of the pedrail will therefore sustain immense friction force and is the main cause of pedrail's wear and tear.



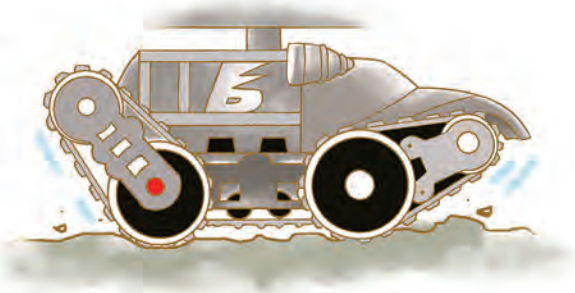
8c.

The advantage of such unique pedrail design is that it can drive out foreign debris but the user must regularly apply special lubricant to the inner side of the pedrail to reduce friction by the wheel shell to minimize wear and tear.



8d.

Loss of lubricant will be more significant after driving over sand and gravel and should be topped up as soon as possible.



8e.

Each tooth on the outer side of the pedrail is thick enough to minimize wear and tear to reduce the need of replacement.

8f.

But if it is often used on rough terrain and spun on gravel, its durability will be greatly reduced. Users must be aware that if friction is excessive, such as driving on wet and muddy gravel, the pedrail may even be forced off the wheel shell.

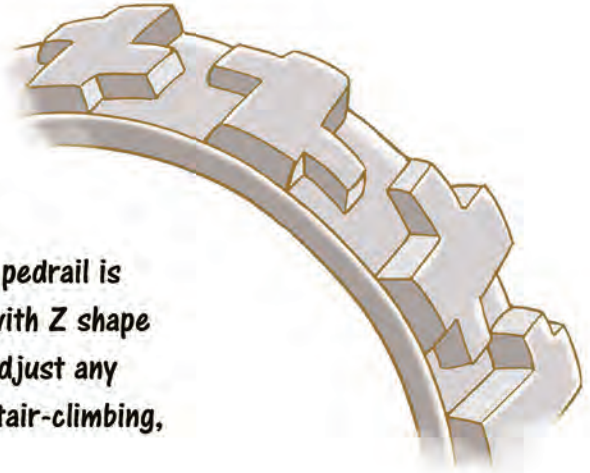


## Tips 9.

### Ways to prevent sideway tilting during stair-climbing

9a.

Although Ranger's rear pedrail is meticulously designed with Z shape teeth to automatically adjust any sideway tilting during stair-climbing,

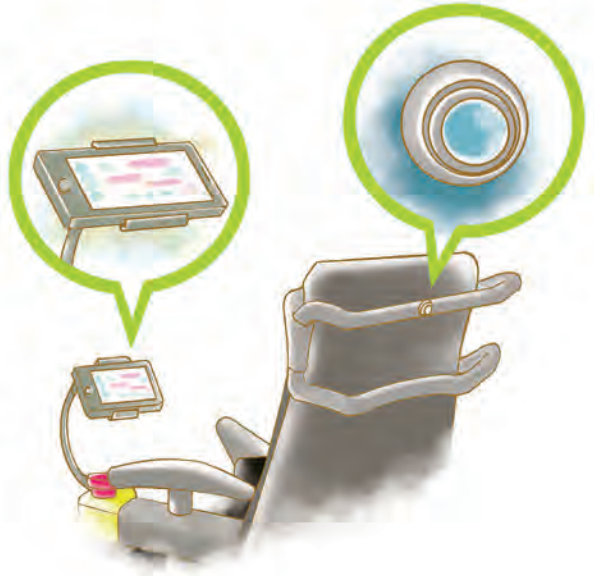


9b.

If friction is strong enough while the user is not controlling well, Ranger may still have a chance to tilt sideway.

9c.

Therefore, Ranger has a rear view camera attached on the back of the chair. When it is connected, a small rear view window will appear on the upper right corner of the screen.



9d.

Just lightly touch the “rear view window” twice to enlarge to full screen to ensure clear rear vision and lightly touch the full screen to retract it back to the upper right corner of the screen.

## Tips 10.

Emergency plan for stoppage on stair due to exhausted power and mechanical failure.

10a.

All users of any kind of rechargeable products must be responsible for estimating the power usage and must not continue to use the device with insufficient operating power.



10b.

Since Ranger uses a special “power failure safe mode” design, all functions will stop and be locked immediately no matter if it is due to power exhaustion or failure. As long as the user stays calm and remains seated, he/she is always safe.

10c.

As with any other wheelchairs or stair climbing devices, the safest approach for any mishaps is to contact the distributor immediately and calmly wait for assistance.



10d.

If needed, light and portable spare batteries are always available from the distributor.



# QUERIES

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## Queries 1. The reason why the unlock lever is located where it is difficult to reach

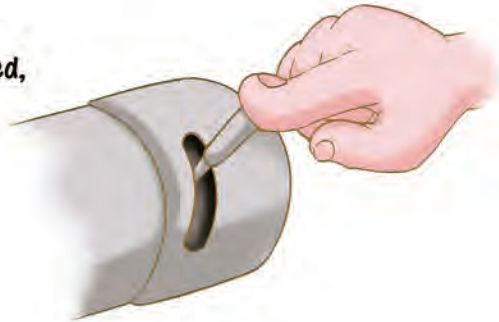
1a.

If the unlock lever is located where it is easy to reach, mishaps may occur if a passerby is too curious...



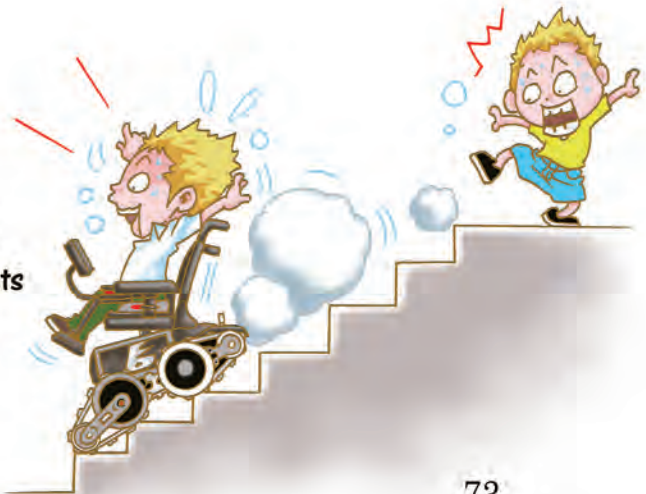
1b.

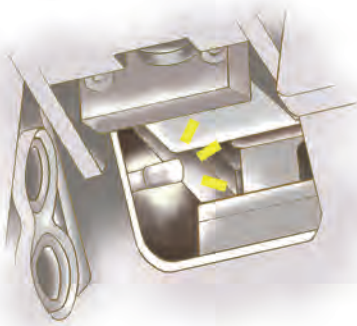
If the unlock lever is tampered, the wheelchair may change into the "Manual Mode for maintenance". The user is no longer able to control the wheelchair.



1c.

The wheelchair could become out of control, causing serious accidents from sliding down the slope or stairs!



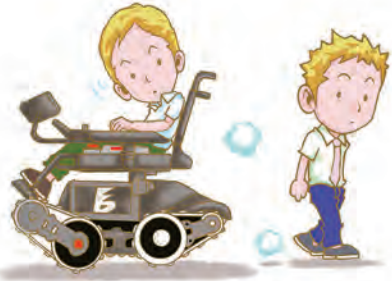


1d.

Therefore, we have to place the unlock level in a concealed position.

1e.

If the wheelchair breaks down on the road,

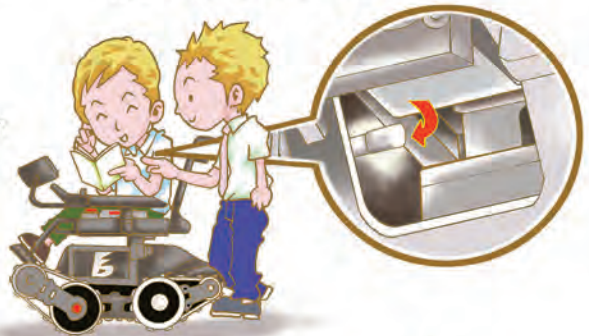


1f.

The user should press the “Light” key on the tablet three times to activate the headlights to “Flashing Mode”, acting as hazard warning lights as for cars.

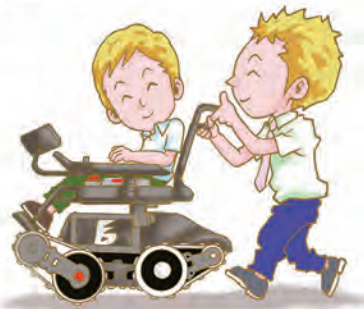
1g.

The user may then ask a passerby to pull the unlock lever to switch the wheelchair to “Manual Mode for maintenance”,



1h.

So that the helper may manually push the wheelchair aside to a safe location to wait for assistance.



## Queries 2. Would an object be crushed while the seat is descending ?

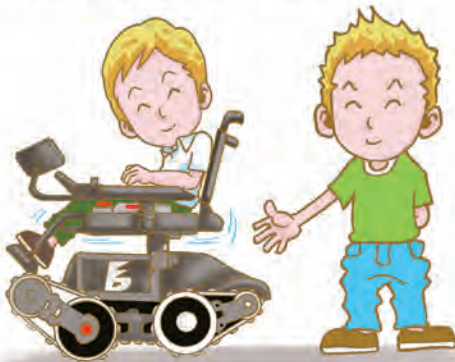
2a.

Upon completion of switching to “Surf Mode” and “SUV Mode” or when the seat balancing system is switched off, the seat will be lowered to leave only a very small gap to the top of the batteries. If any body parts or objects are to enter this gap, they will be crushed.



2b.

Ranger is equipped with smart touch sensors on the top of the batteries. The sensors will be activated if any body parts or objects are to enter this gap and a warning message will appear on the main screen. Simultaneously, the tablet PC will emit a warning beep and the “ % ” in the lower left corner of the screen will change to display “Touch Sensors tampered”.



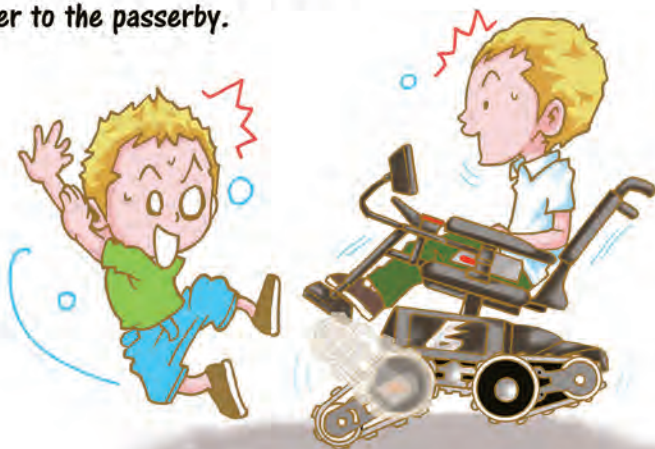
2c.

Synchronously, the seat will be elevated to release the body parts or objects in the gap to avoid accidents.

### Queries 3. Would mode switching post any risk of injuring passerby ?

3a.

While mode switching is in progress, the front pedrails will swing forward/backward and may impose danger to the passerby.



3b.

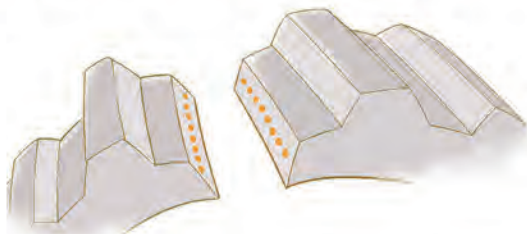
A Buzzer is equipped in the tablet to emit beeping sounds to alert passerby when mode switching is in progress.



## Queries 4. Would the pedrails break easily?

### 4a.

Ranger's pedrail is specially structured to mix the extremely high tensile metal wires with high abrasion resistive composite rubber to form a unique stretch and split resistant pedrail. It is therefore extremely difficult to over-stretch and break the pedrail.



### 4b.

Furthermore, Ranger uses a patented multi-pedrail system with 3 pedrails on each side to consist of a total of 6 pedrails to minimize risk in case of sudden rupture of a pedrail that the remaining 5 pedrails can still safely support the full weight.



## Queries 5. Reasons for Ranger's slower mode switching speed

### 5a.

The positioning of Ranger's four operation modes is determined by the "encoder" readings. (the numbers at the "Setting" key left of the "Encode value" )



### 5b.

If the switching speed is too fast, "encoder" reading error may occur easily to affect the accuracy of mode positioning.

### 5c.

Moreover, the faster the mode switching speed, the more unstable the transformation and the more discomfort to the user.



## Queries 6. Why would Ranger's speed be slower when compared with other power wheelchairs ?

6a.

Repeated road tests by different user groups have revealed initial inexplicable excitement of driving Ranger over obstacles and up and down stairs at unsafe high speeds while ignoring risks of accidents.



6b.

To minimize risks and accidents, B-Free will only produce Ranger of speed lower than the international standard of "6 km/h".



6c.

Risks and accidents as resulted for any modifications must be held responsible by the user.



Queries 7. Why does Ranger not equip with “elevation/backward tilt” or “stand” functions?

7a.

The more functions it has, the more complicated the control is. Ranger has already had four operation modes. If more modes are added, it may become too complicated and confusing for the user to control, hence risking accidents.



7b.

The more functions it has, the more parts and complex mechanical structures are required and therefore the more production cost it is. Such cost will have to be passed on to the users, increasing Ranger's retail price.



7c.

To make a metaphor, a table tennis bat is to play table tennis and a badminton racket is to play badminton. If a bat/racket is invented to be able to play both games, it will end up failing both purposes!



7d.

Ranger specializes in its rough terrain and stair-climbing abilities and its current functions are more than enough for its capability.



## Queries 8. Why would Ranger be heavier and larger than other wheelchairs ?

8a.

Since the maximum load capacity is 100 kg, Ranger must weight heavier than its load to prevent toppling due to natural mechanical fault of heavy load on light base.



8b.

Ranger is a multi-functional power wheelchair required to negotiate different terrains, stairs and obstacles. If it is too small, it could easily be off balanced and toppled due to insufficient support.



8c.

The more functions it has, the more parts and complex mechanical structures are required and therefore the heavier and larger Ranger is.



8d.

It is utterly unreasonable to wish to enjoy all the safe functions Ranger has, yet demanding that it has to be light and small!



## Queries 9. Why would Ranger not supposed to operate in the rain ?

9a.

For safety reasons, manufacturers do not encourage power wheelchairs to be used in the wet and they are therefore not designed to be waterproof.



9b.

For the same reasons, we also do not encourage Ranger to be used in the wet. Since Ranger is designed for the global market, it has already passed stringent waterproof tests and complies with international standard of proper waterproof capability. Ranger can still be operated safely in the wet as long as the user takes cover as soon as it rains.



## Queries 10. Is the stair-climbing principle adopted by Ranger reliable ?

10a.

Most stair climbers operate on the principle that the pedrails hook onto the nosing of the stairs to grip and climb.

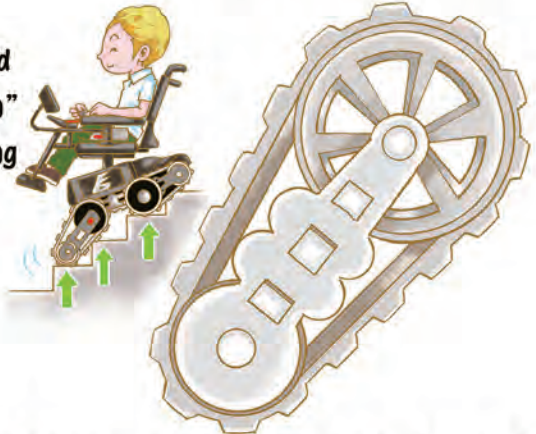


10b.

Such hooking mechanism is insufficient to sustain an accidental push from behind and the user risks sliding down the stairs.

10c.

Ranger uses the uniquely designed and patented “Pear-shaped pedrail system” to not just able to “hook” to the nosing but to firmly and stably “step” and “prop” on the tread of the stairs.



10d.

Its safety with the ability to sustain enormous force from behind and not to be toppled is undoubtedly proven by our patented design and numerous practical tests. Our stringent tests also include sideways forces to ensure maximum safety.

10e.

This is also why the maximum sustainable sideways pulling or pushing force is 60kg when Ranger is carrying a user of 100kg weight climbing on stairs of 35° inclination.



10f.

Ranger can still easily and safely climb a staircase of irregular inclination.

## Queries 11. Would accidental tap on the touch screen be risky ?

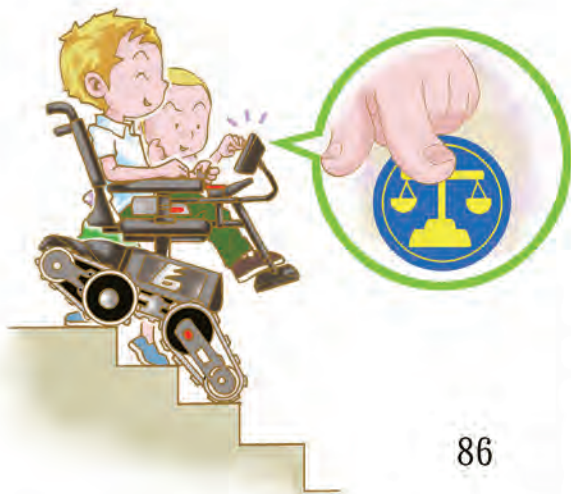
11a.

The touch screen is very responsive, if immediate mode switching change is allowed by only one touch, any accidental touch by the user or passerby may trigger unwanted and even detrimental mode switching particularly when the wheelchair is on stairs.



11b.

To ensure safety, after selecting the appropriate operation mode key, the "OK" key must be pressed to confirm the wanted mode switching.



11c.

To further ensure safe stair-climbing, the seat balancing system cannot be switched off even if the "Balance" key is accidentally pressed while the "Stair Mode" and "Steep Mode" are in operation.

## Queries 12.

Why is Ranger not equipped with reverse warning ?

12a.

As reverse driving is required in daily activities, most experienced power wheelchair users will not find reversing difficult.



12b.

If need be, “Reverse Warning” can be requested to be installed by the distributor on the right controller. Reverse steering of the joystick will activate an alert beeping sound to warn passerby. As most users find such function annoying, it is not installed as a factory specification.



12c.

Users who find it difficult to reverse may Just lightly touch the “rear view window” twice to enlarge to full screen to ensure clear rear vision.





## Queries 13. Reasons for manual left/right adjustment while climbing stairs

### 13a.

All sensors can be adversely affected by external factors such as highly reflective smooth materials used on the staircase or water marks, uneven bumps and chipped nosing etc. It is therefore dangerous to use sensors for auto left/right steering, especially on stairs.



### 13b.

Faulty sensors may issue detrimental false directional instructions to the control system that the user may lose control of the wheelchair and be tilted and even be toppled down the stairs.



### 13c.

Even if the sensing system can be developed to become perfectly synchronized with the control system, the R&D cost will be unpractically high. Coupled with insurance liability issues, such fully automatic driving system will definitely put immense burden on the product cost and therefore user's affordability.



### 13d.

We are diligently developing an “Intelligent Sensing/Scanning System” that can automatically scan the environment around the wheelchair so as to provide the user the most appropriate warnings and suggestions. But the final decision of how to operate the wheelchair is still on the user. In case of system failure, the user can still have full control to minimize accidents.



## Queries 14.

Why would the lights be located by the sides of the chassis ?

14a.

We are often questioned why the lights are not located by the sides of the seat to avoid blockage by the front pedrails while at “Surf Mode”?



14b.

The lights are designed mainly for illumination while negotiating rough terrain and stairs. The lights will not be blocked by the front pedrails while Ranger is operating in such modes.

14c.

Adversely, if the lights are located by the sides of the seat, the stairs will not be illuminated while Ranger is climbing up or down!

