Parking Light Installation and Configuration

Preparation

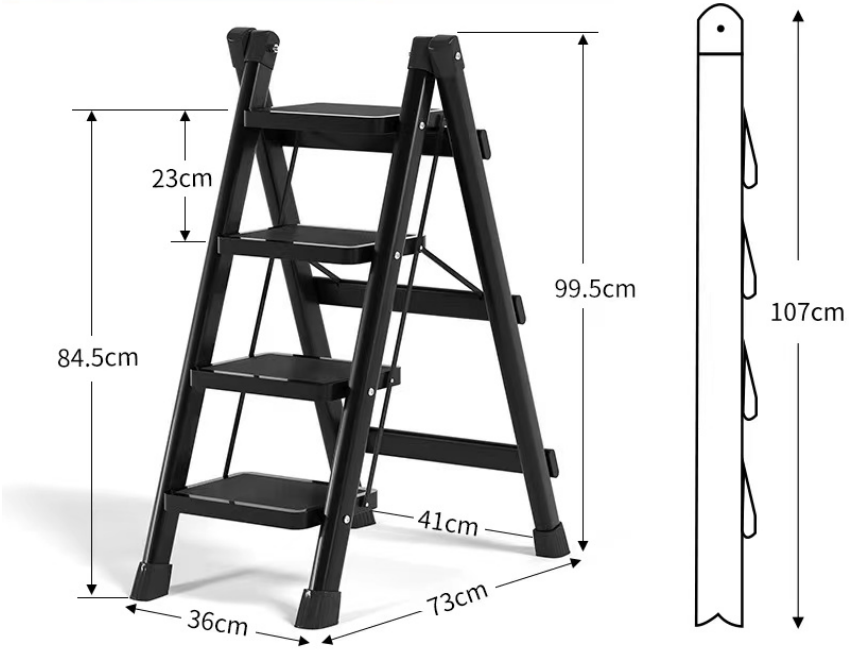
- Check of lights， make sure the fixture opponents are ready. Have a laser marking device to make all lights installed paralleled with lane.
- Make sure IoT gateway is ready.

Prepare a 12V/ 2000mAh Li-on battery, Supplied power to GW, Portable for moving

GW should close with the Light while doing binding BLE mesh.

Make a plug with Wago so that easy For power on lights

Preparation



Four steps ladder, 1 meter long while In fold, portable for car trunk

4th Step is 85cm height, steady for Worker with 160-170cm.
With help of ladder, worker can touch Laser ranging sensor at 2.6-2.7 meters Height, easy for adjust laser shooting.

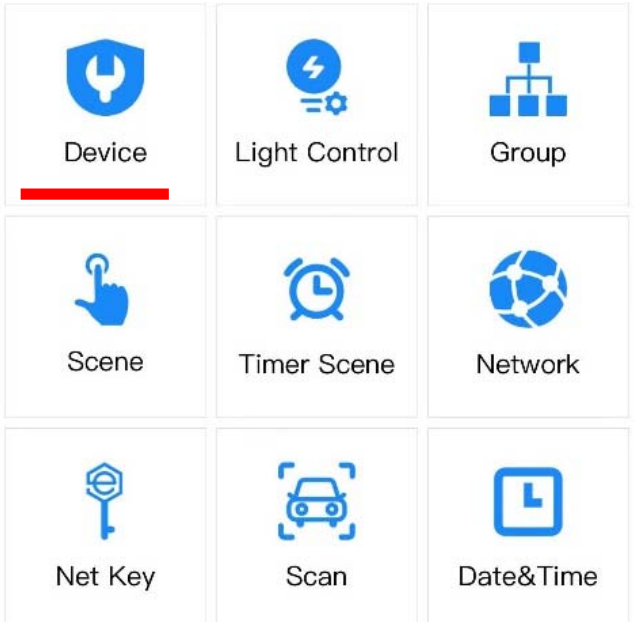
This ladder is portable and steady than others. But if need higher, choose others.

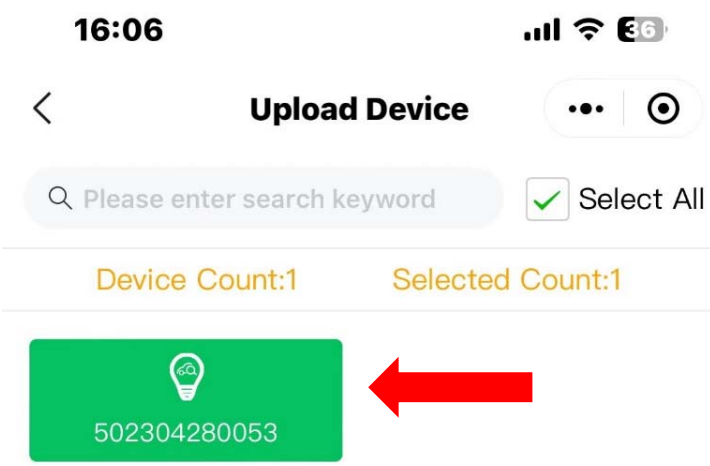
Laser Ranging Ruler

Binding lights with IoT gateway

Open IoT gateway assistant while phone is on line

Binding lights with IoT gateway



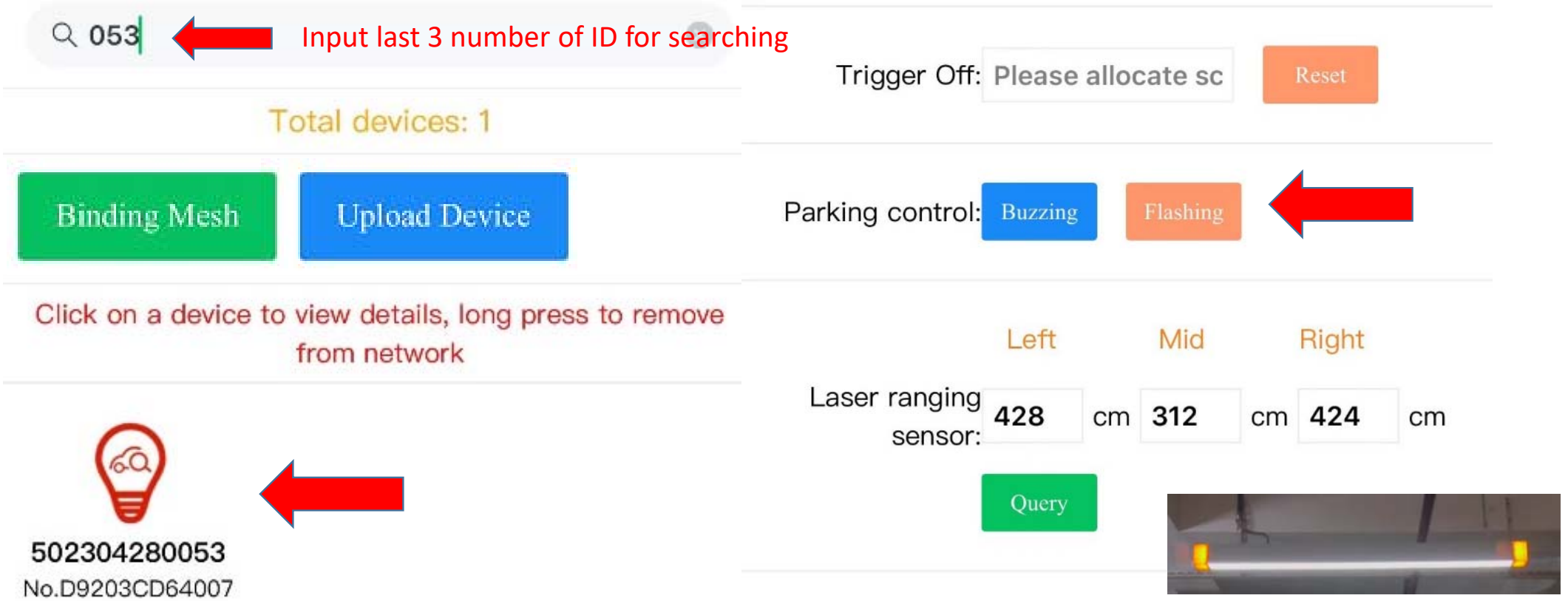


Device——》Binding——》show lights isolate without binding. Choose light and binding one by one, not in batch operation. After binding successful, remember to record last 3 number of ID in paper.

Note: while in binding , it is strongly recommended to make GW and lights close enough, because this operation is done by point-to-point, not in mesh.

Similarly， it need to wait ten seconds after remove binding from gateway.

Binding lights with IoT gateway



After binding, enter light device page, push flashing button to make sure it works. Then continue to next one, until all lights are binding totally.
This flashing function is useful for locate specified light by ID.

Binding lights with IoT gateway

The capacity of IoT gateway is maximum 100 lights as a whole network, usually 80 lights for 20 as margin.

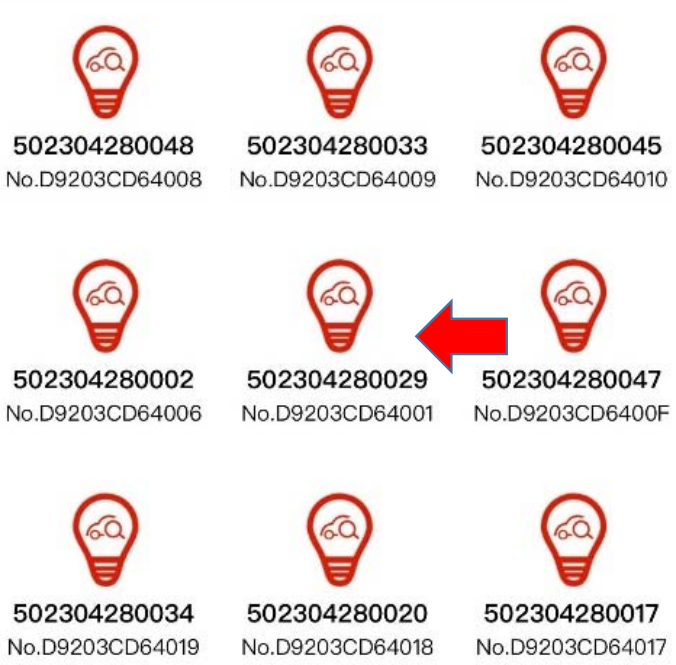
If whole project plan need deployment of gateways in garage, it is better to divide garage into sections in advance, so that identify the correspondence of lights and lots, allocate specified gateway to bind and build mesh. Certainly gateways need to be installed in boxes on site.

If no need for gateway, just use as configuration tool, this means a temporary tool. Record lights ID and bind mesh into gateway before installation, remove bind relation after installation and configuration.

Light and gateway need to close enough while doing binding mesh.

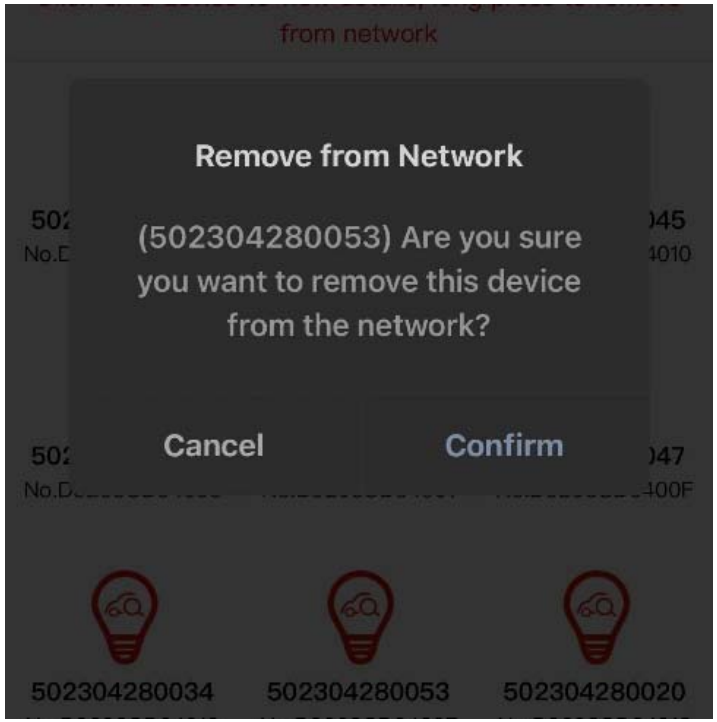
During bind or unbind, illumination of light will be flashing, means light has been finish last procedure of operation.

Remove lights from IoT gateway

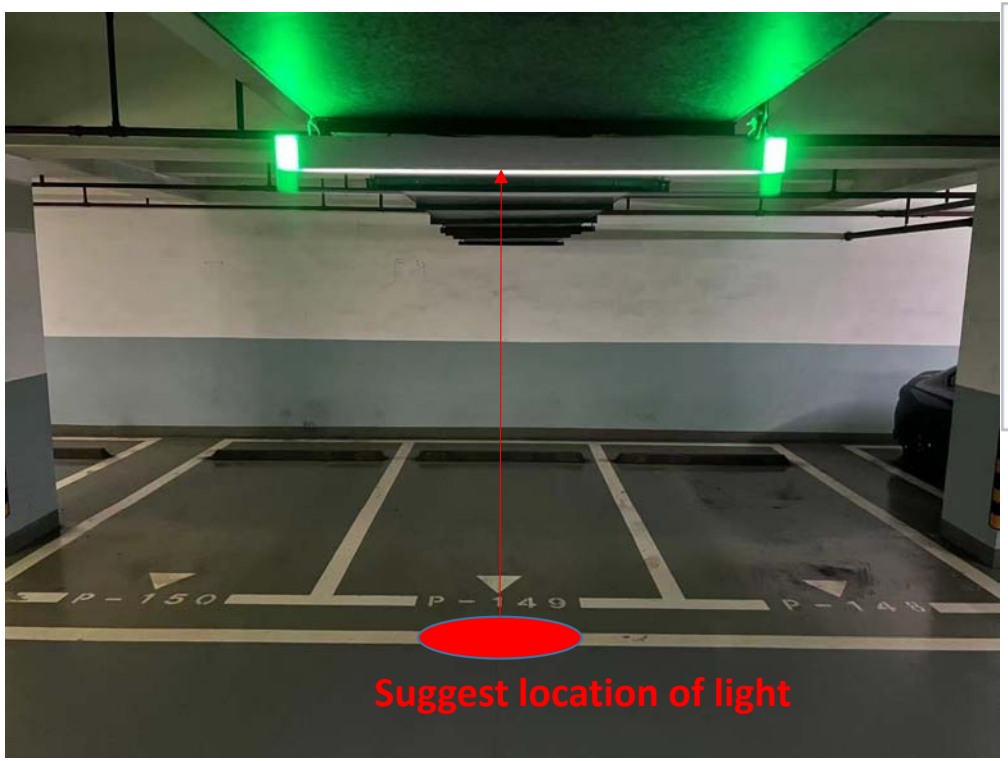


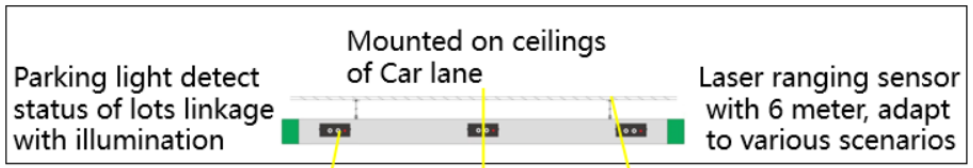
Push device icon several seconds, It will active page to remove binding. After confirm, this light ID will be deleted from gateway.

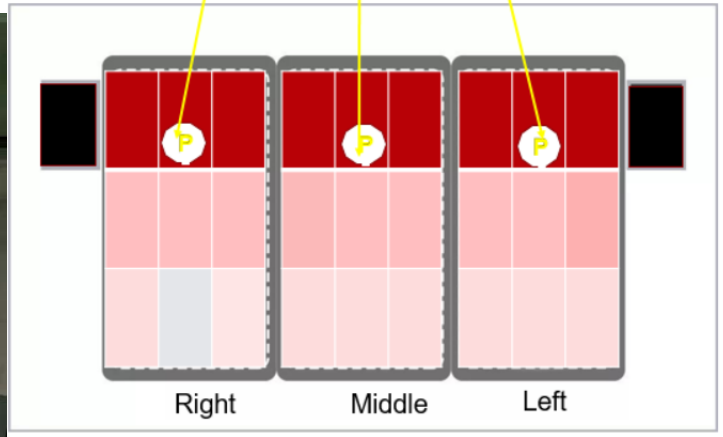
At this time, do not urge to close applet or cut power of light and gateway. Light will automatically execute final procedure after ten seconds. This will shown as flashing of illumination, which means light finish unbind successfully.

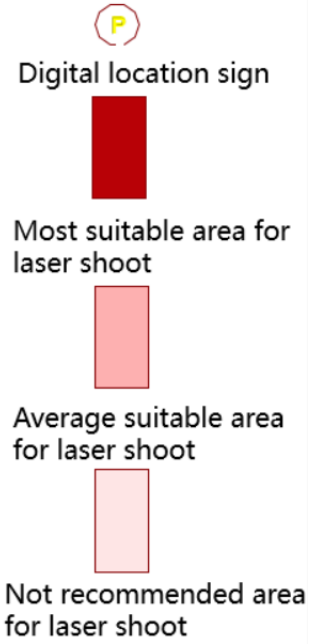


Configuration for empty lots







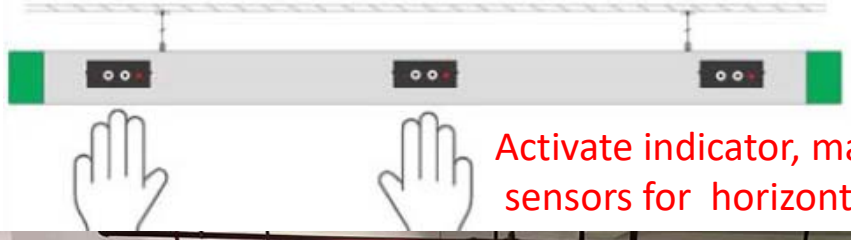


Lights should be installed as symmetrical to parking area and best for empty situation.

It is suggested to mount light over car lane, 2.6 – 3.0 meter high and project point with 1 meter with front of lots line.

Lights should be parallel with car lane.

Laser shooting rules

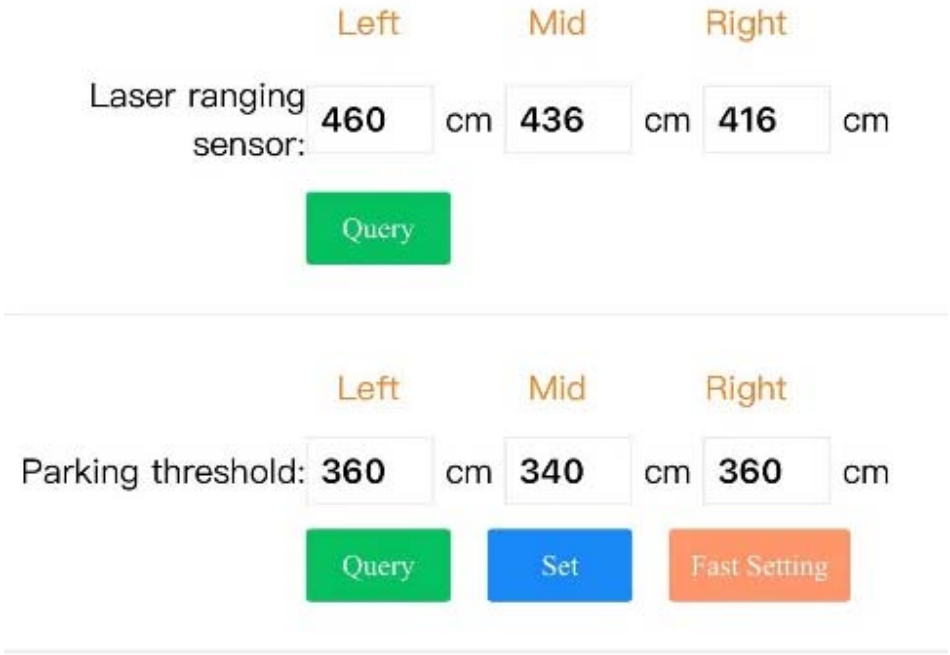


Activate indicator, manually rotate sensors for horizontal or pitch

Using scan of applet, worker can review BLE broadcast data of laser ranging sensors.
Make sure all AMP data should be large than 100, and have margin value. This means reflective rate of ground suitable for laser.

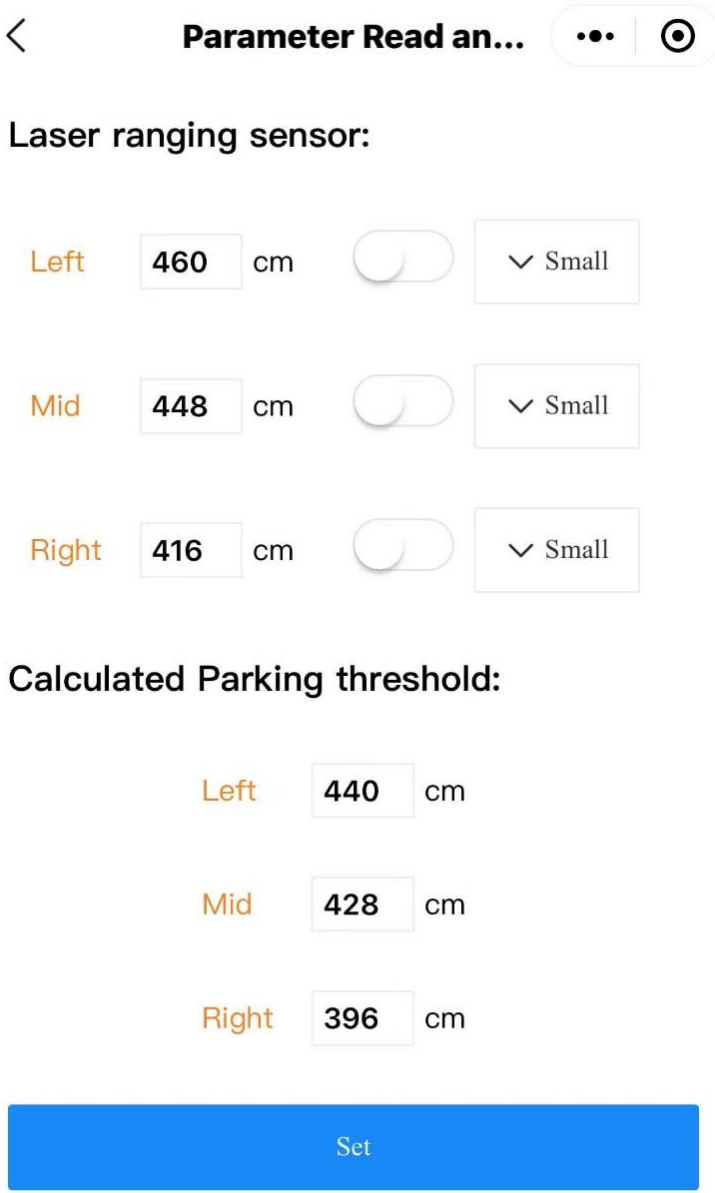
If reflective rate cannot satisfy with > AMP100, this can be solved by painting assistive logo or install other high reflective rate signs on ground.

Parking threshold setting

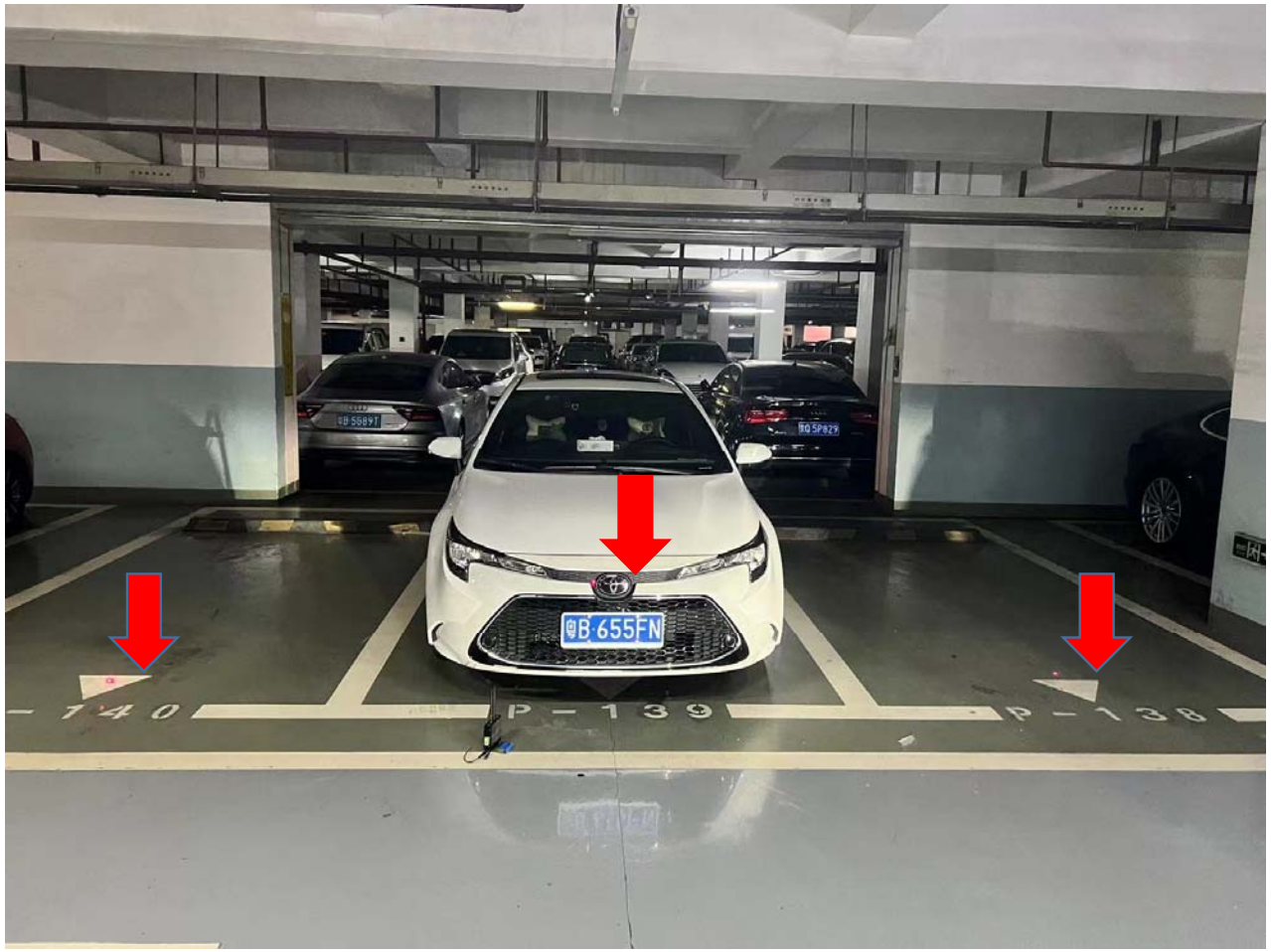


Use fast setting for all lots empty situation, it just minus 20cm from current ranging data.

It also can directly input threshold setting manually by set button.



Configuration when have parking



	Left		Mid		Right	
Laser ranging sensor:	464	cm	340	cm	416	cm

Query

	Left		Mid		Right	
Parking threshold:	360	cm	340	cm	360	cm

Query Set Fast Setting

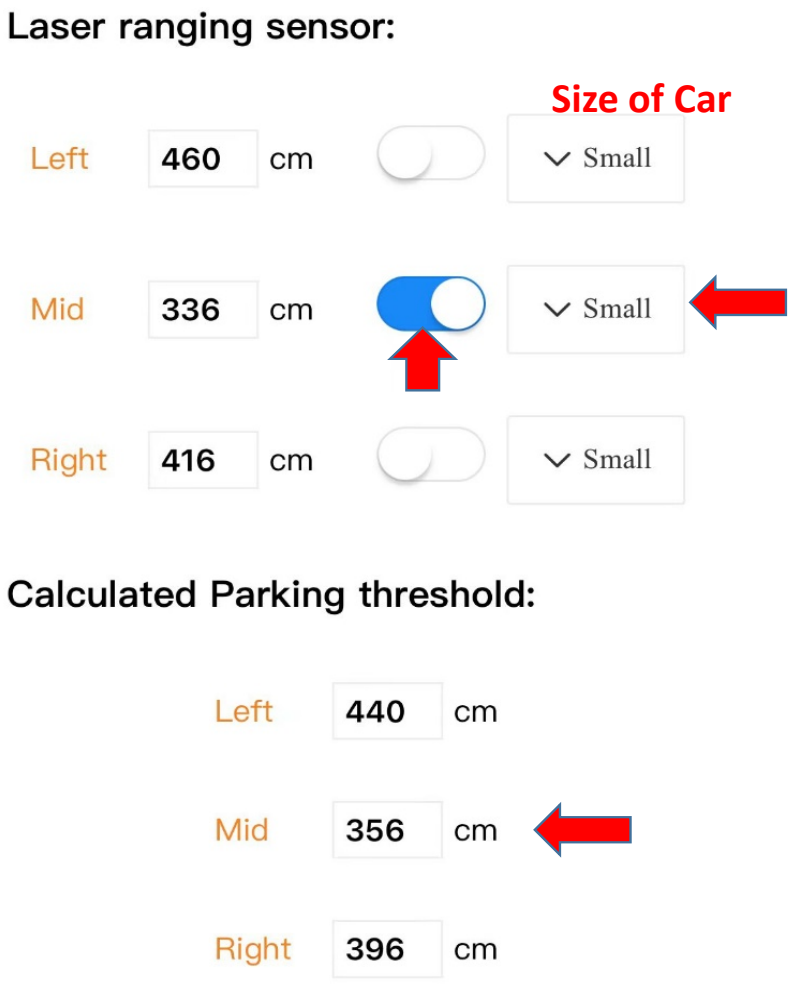
If lots have parking, laser will shoot at hood of car, choose suitable threshold settings, but need to check whether laser AMP data large than 100 when empty.

Configuration when have parking

When there is parking on lot, it can use fast setting page to config threshold by select full lot with different car size.

Small car, distance + 20cm
Normal car, distance + 60cm
Large car, distance + 100cm

It is estimated for threshold when there is parking on lot. For some cases, estimated threshold may not satisfied other cars even with 1 meter increments. So this need workers have more ability and experience to do adjustment for reality.



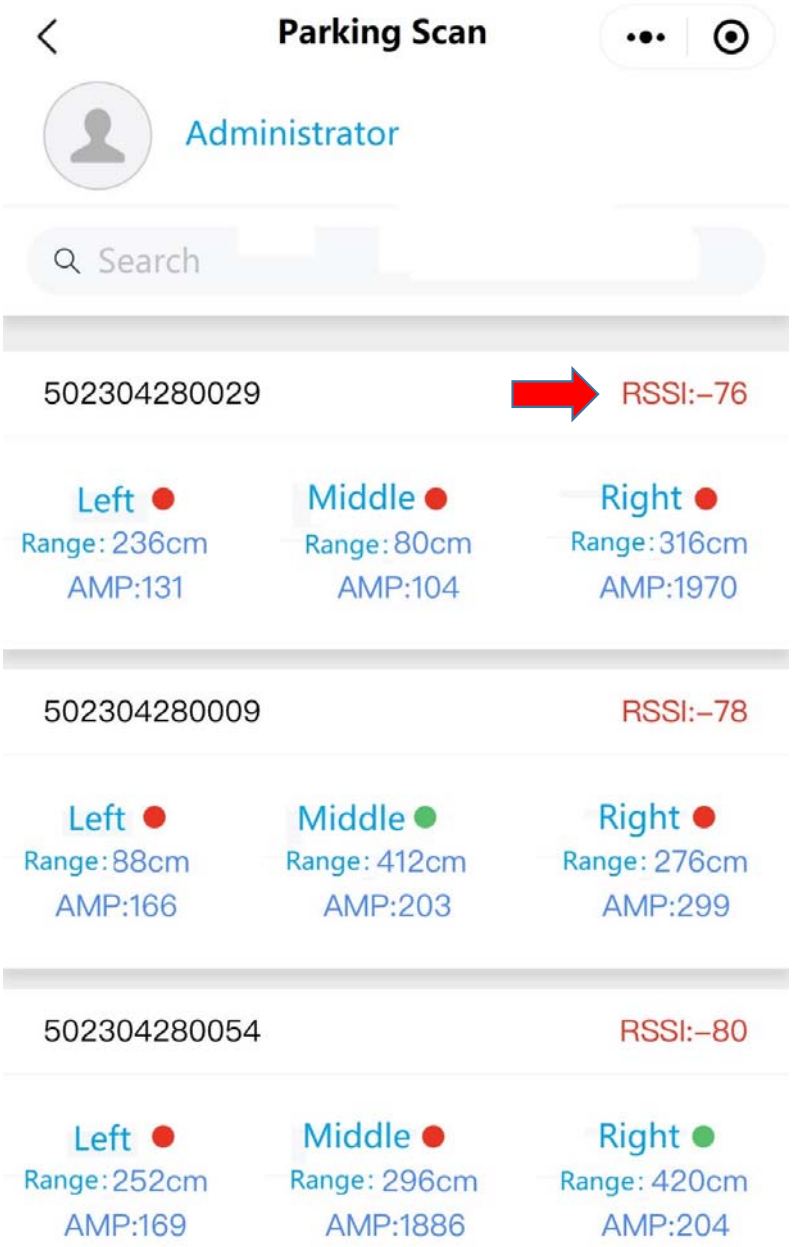
Inspection and check

Use scan of applet, worker can inspect lights data from broadcasting, get realtime ranging data and parking status.

RSSI value, this is amplitude of BLE signal.

While worker using phone to inspect broadcasting, the fist record on top of applet scan page should be the one over your head. That is, the light overhead should have strongest RSSI value ,which make its record popup at top of page.

This method usually use to find ID of light overhead.



Inspection and check

It need some conditions for sensor to work. Because requirement of Parking detection, some simplifications has made on design of this laser ranging sensor, which cause some distortions in measurement under lower reflective rate cases.

Value of AMP is relevant with surface reflective rate, normally distance data is in fidelity in case of AMP large than 100

For white car, AMP value should be higher than 1000 -2000.
For silver or other bright color, AMP value always hundreds.
For black cars, especially Benz, etc. AMP value sometime reach 70-80 lower.

So for glass and some black painted cars, laser data will be much short or long, but AMP value will be reduced at same time. So this will cause lot be identified with full for AMP lower than 100. It needs more experiences for worker on site.

Thanks !