



Split Ultrasonic Parking Guidance System

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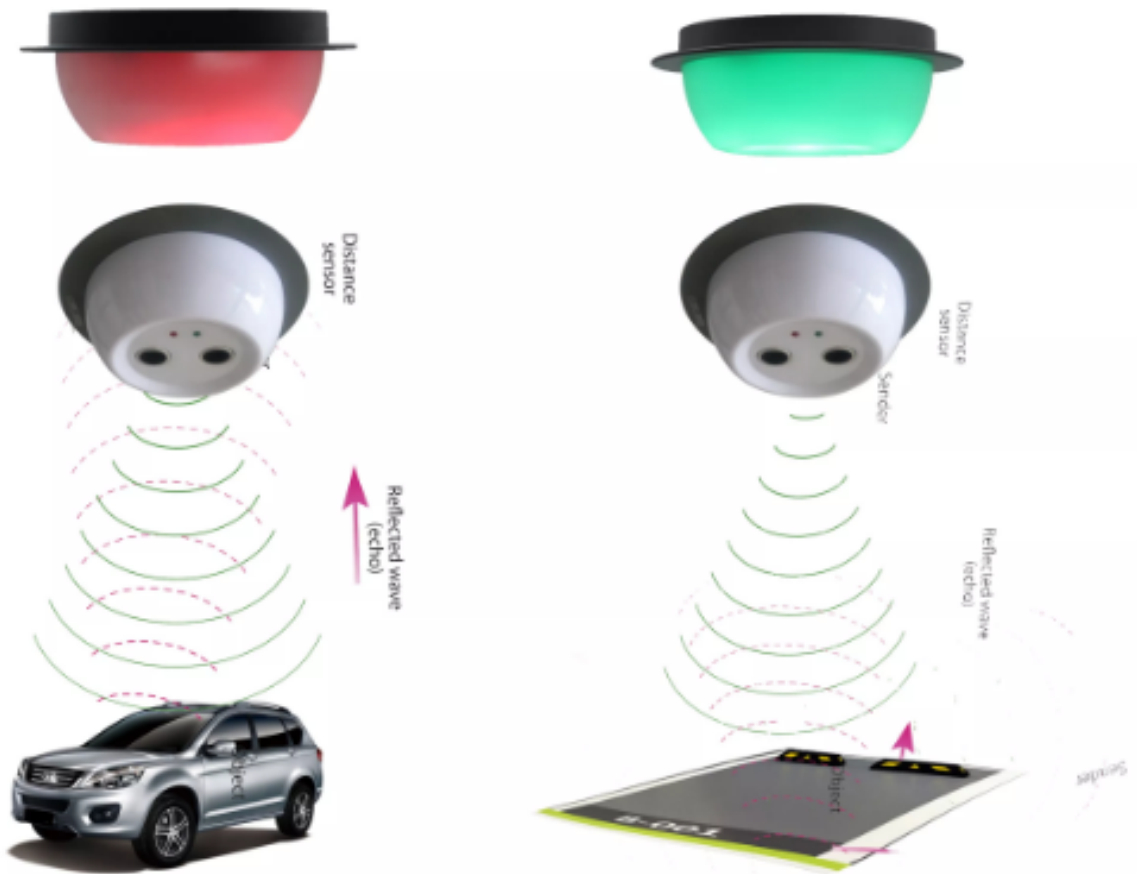


Split Ultrasonic Parking Guidance System

1 、 Introduction

Integrated ultrasonic parking guidance system means 1 unit of parking guidance detector integrated with indicator all in 1 , the detector can both work as detector and indicator.

As when there is a car in the parking bay the detector will turn to red color otherwise it will be green color.





2.Working Principle

>一. Parking Lot Detector (PD) constantly detects the presence vehicle

By using Ultrasonic wave, if any vehicle is parking on the space, PD will send command to Parking Lot Indicator

>二. In the same time PD will immediately transmit its status to Area Controller Module (ZCU) and processing the data and send to Parking Guidance Display Screen (Display).

>三. Parking Lot Detector, Led Display Screen and Vehicle Detector to make the whole system which can run offline independently.

>四: The main controller can collect all the system data and display on the pc software by Using TCP/IP protocol which in physical port is rj45.

>五. The System Management Software have below functions:

- 1). Feedback the real time occupancy situation to the control room.
- 2). Parking spaces usage statistics and reports
- 3) .parking spaces number correction





3.System Components

一: Integrated ultrasonic detector(Parking-SD101) +indicator (Parking-IDCSD101)



Front-mounted ultrasonic detection+ indicator lights 2 IN 1(All in 1)

二: Central Controller Box(Parking-64 Central)



Independent offline control and one unit of main control box can support max 64 units of nod control box



三: NOD Controller Box(Parking-32 Nods)



Each can be connected to 32 units parking bays

四: Single Direction Led Display Screen (Parking-201Screen)





五: 2 Direction Led Display Screen(Parking-202Screen)

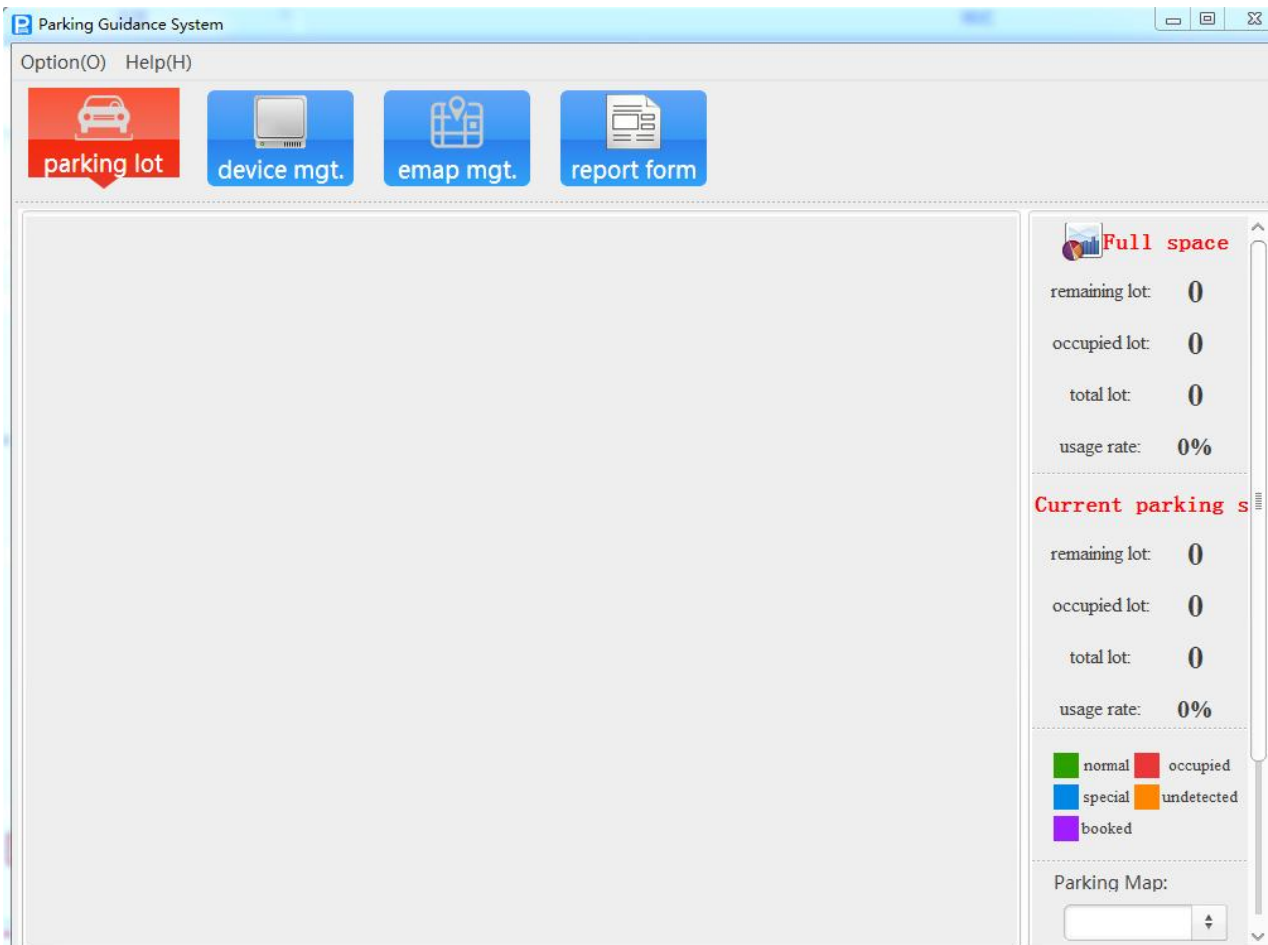


六: Outdoor Led Display Screen (Parking-103Screen)





七: Management Software



八. Power supply

- 1.The system use DC 12V power supply for the device power input.
- 2.Detector and led display wiring use rs485 communication cable
- 3.Central controller wiring to PC management software use TCP/IP communication
- 4.Central controller wiring to nod controller and in between nod controllers it use the cab bus

Wiring method



4.Project Installation Guide

Requirement:

1. The installation height of the parking space detector must not be lower than the parking lot limit;
2. There must be no other hanging objects around the parking space detector;
3. The parking space indicator is consistent with the projection of the projection and the parking space end, and there must be no obstacles in front;
4. In front of the guidance information screen, if there are obstacles such as air -conditioning ducts, water pipes, fire water pipes and other obstacles, the corresponding movement screen position should be moved according to the premise of ensuring the guidance effect, which can be determined according to the construction guidance.

Wiring Description

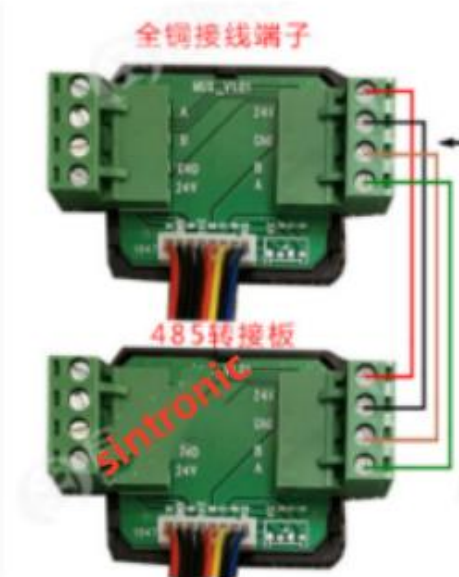
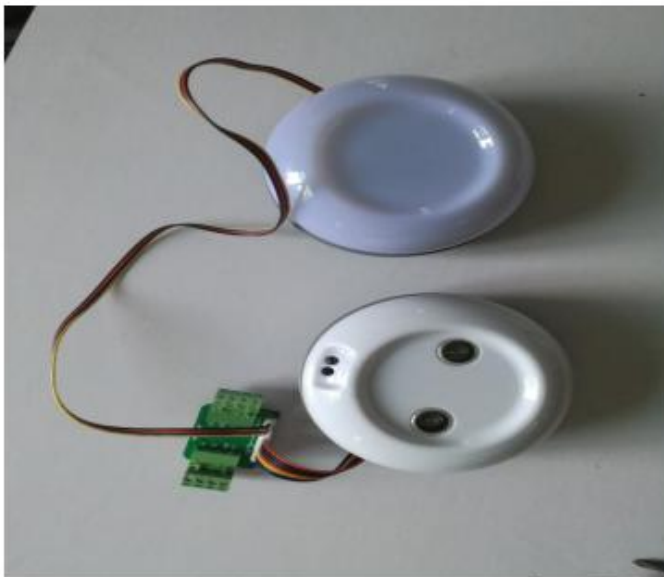
1. The power cord of the parking space detector adopts RVV2X0.5mm+RVSP2*0.5 wire(1-4 lines), and the parking space detector communication cable adopts

A)Detector wiring:

Our ultrasonic sensor for parking guidance system adopt rs485 communication technology to work for each other signal transfer and it request to use the RVVPS cable for wiring by doing like

orange+white (line order) for connecting to A and Orange color for connecting to B

Or green+white wiring to A and green wiring to B



Detector is connected by rs485 board which is B-B,A-A in the signal board



B) Controller wiring

Central controller wiring to nod controller and in between nod controllers it need to use the can bus RVV3*1.5+RVSP2*.075

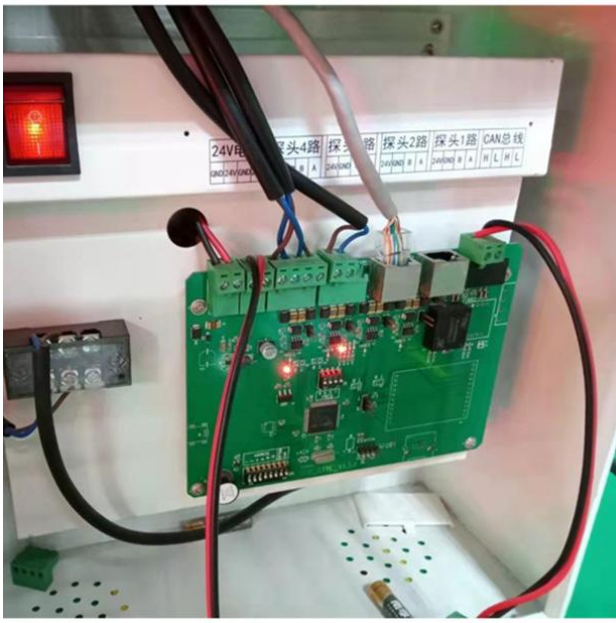
For example

1 unit of Our Main controller support 4 line ultrasonic sensor wiring and each line can support about 30 unit of

Power wiring

ultrasonic sensors and the main controller is connecting to nod controller by using the can bus port which is H ,L,H,L

which is wiring one by one from H to H, L to L



Important notice

A)in this solution it need to use the rvv2*0.5 cable

B)If the controller is in the first and it requested to do the wiring from first main controller to the last controller from short circuit cap to short circuit cap

C)It request to set up the main controller physical address to 1 and nod controller physical address from 2 to 63 by pushing the address code button to on situation

Signal cable wiring

How to do rs485 signal wiring from ultrasonic sensor to main controller or nod controller

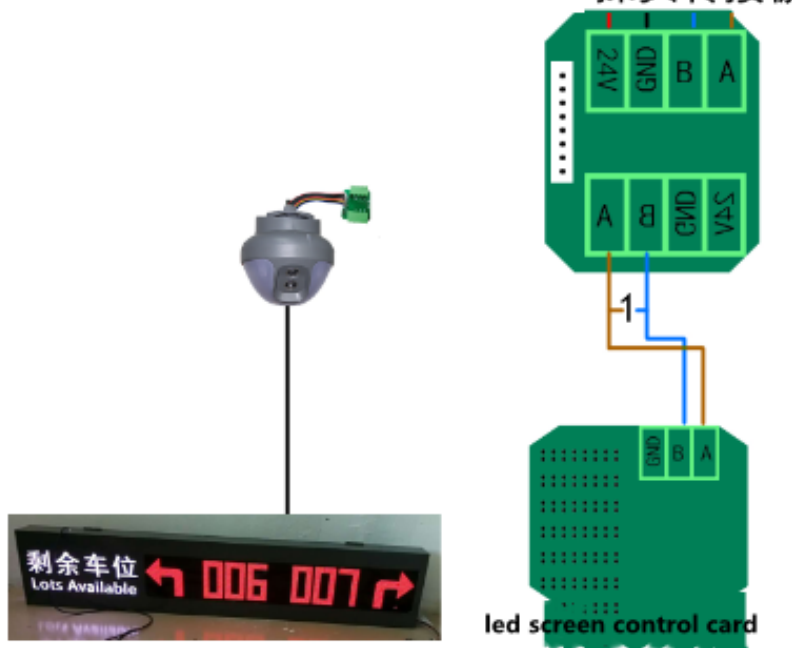
Use the rvsp cable from ultrasonic sensor A Signal to controller sensor signal position A, B to B



C)Display Wiring

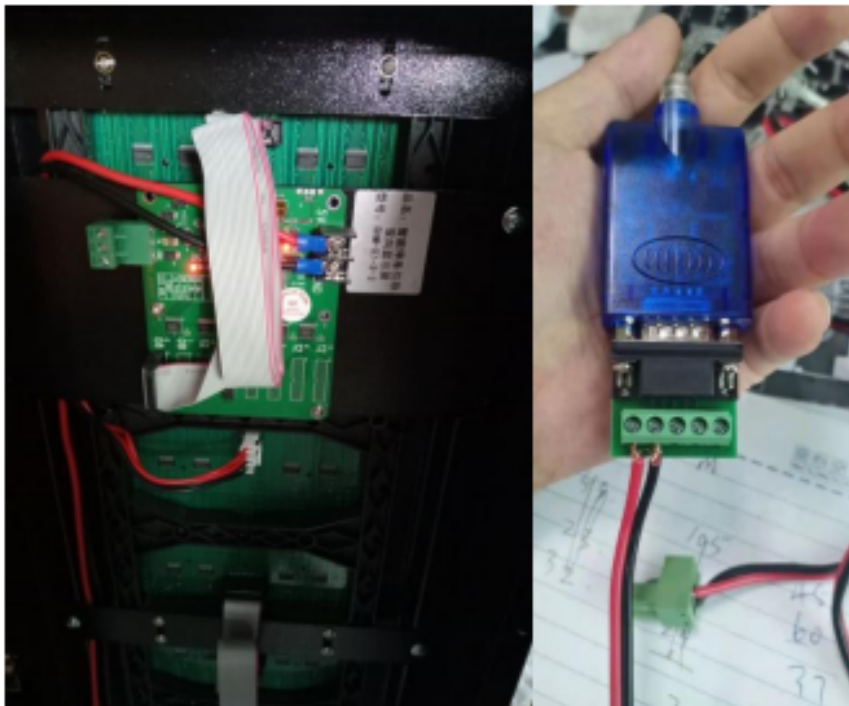
Power supply: Use the RV3 * 1.5 power cord to connect the AC220V to the switching power supply in the boot box, and the ground wire is connected to the guide screen.

Communication line connection: The connection mode is shown below:



Important Notice:

A)it requested to use rs485 debug tool to connect to the computer and between the led screen A&B



1. USE THE LED SCREEN DEBUG TOOL TO CONNECT THE RS485 PORT TO LED SCREEN RS485 PORT THEN THE TOOL OTHER SIDE USB CONNECT TO PC
2. CONTINUE TO INSTALL THE DRIVER UNTIL FINISH



C) Remote control setting



1. Address: Set the address code
2. Detection distance: 0-6M can be set
3. Equipment type: can be set to probe (DTT), screen (screen), wireless light (light) (not used temporarily)
factory test mode (factory)
4. Working mode: offline (off) or online mode (on). In online mode, if there is no RS485 connection within one second, the LED will flash. Offline mode does not flash
5. Display type: Normal mode (red and green display), whether it is VIP (red and blue display), and appointment mode (red and yellow display). Up, down, left, and right are used to select which parameter to set, and the cursor will flash on the currently set value. The plus and minus keys change the parameter value. The read key can read the current information of the device. After setting the parameters on the screen, click the setting button to set the corresponding parameters of the device.



D)Cable

A:For :controller to sensor , sensor to sensor, led screen to sensor connection pls use 2 kind of cable which is 2 chip 485 cable rvsp 2 chip 0.5 and rvv cable 0.5

1 unit of 2 chip rvsp(for rs485 communication) cable and we advise the chip is 0.5 +1 unit of 2chip rvv cable(for power)



Rvsp cable 2 core

(rvv power cable)

B: For nod controller to main controller please use rvsp 2 chip 1.0 for 483 port A&B connection and use rvv cable 1.0 for power port ,24v and gnd connection



(rvsp 2chip cable 1.0 diameter)



(rvv cable 1.0)

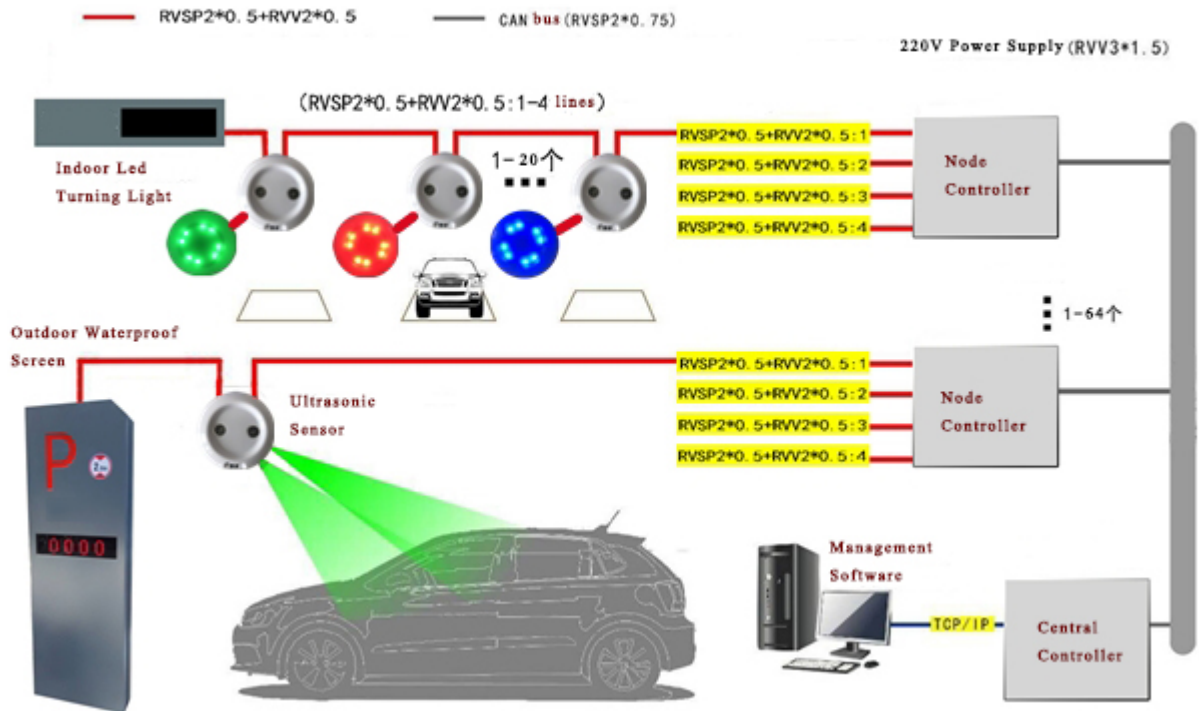
All wires must meet relevant national standards.



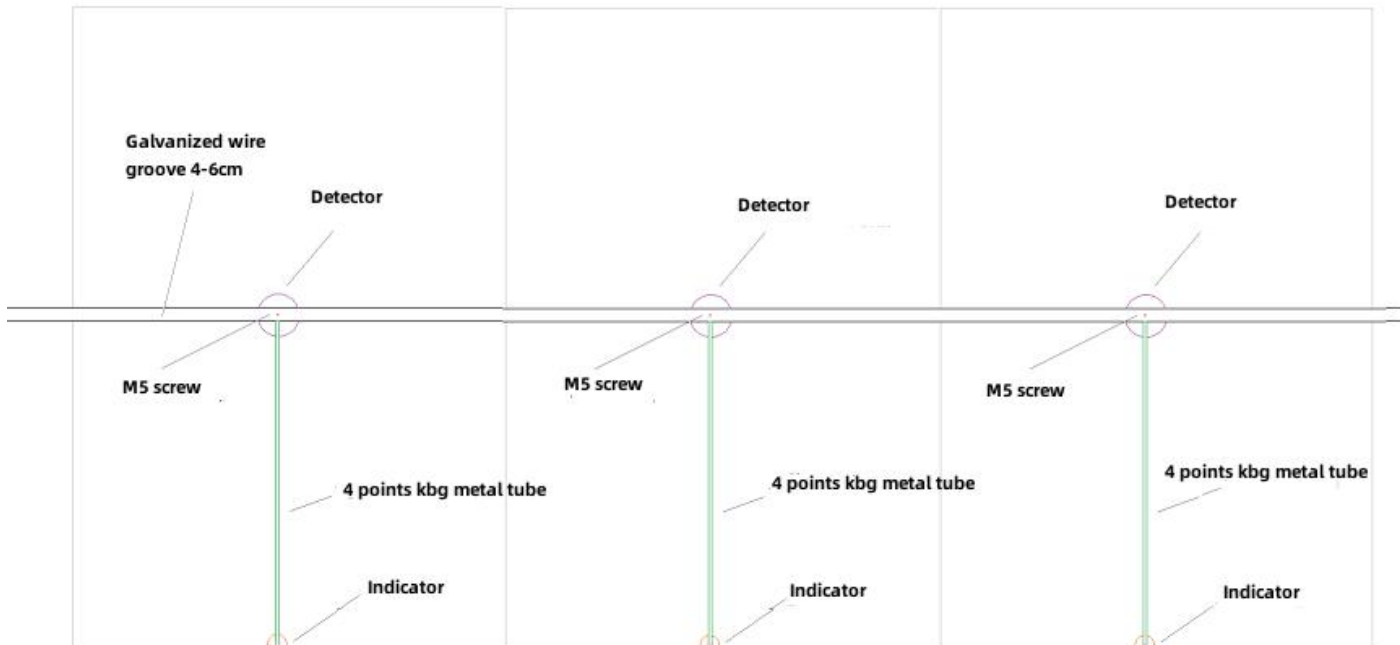
2. All communication cables in the system must adopt the bus wiring method. It is strictly forbidden to adopt a star or "T" forming method.
3. All strong and weak electricity are wiring. The wiring and installation of the parking space detector are installed in a wire groove. The specifications of galvanized wire grooves are 50mmx25mm and the thickness of 0.8-1mm;
4. This system's AC220V power supply should be set up with lightning protection and grounding measures. The system line must set up a leakage circuit breaker protection.
5. The electrical equipment of this system, metal shell, cabinet (frame), metal tube groove, shielding cable outer layer, anti -static grounding of information equipment, safety protection grounding, wave surge protector (SPD) grounding end, etc. The grounding terminal connection with the equal potential connection network.
6. The parking space detector should be installed above the center of the parking space. Except that there are restrictions on the top spot, it should be consistent (local limit height and the distance between the vehicle should not be less than 500mm)
7. The parking space detector and parking space indicator are installed at the same level. According to the situation at the scene, the best distance is 2.3 meters to 2.5 meters (where the local area is not enough can be appropriately reduced); Other objects are blocked; vertical installation is directly above the parking space.
8. The parking space indicator can be localized when encountering obstacles such as air ducts. In case of obstacles such as the tube row, air duct, etc.
 - (1) If the upper obstacles are parallel to the indicator light, the height of the indicator light is used;
 - (2) If the obstacle of the upper obstacle is crossing the arm of the indicator light, the indicator lighting arm support is consistent with the height of the height of the indicator light after bypassing the obstacles. In order to ensure the overall aesthetics, more than two elevations should not occur at the same position.
9. The parking space indicator is consistent with the projection of the projection and the end line of the parking space; in the case of a local decline area, the line tube of the parking indicator light should be unified with the standard high after 90 degrees.
10. Guide the information screen divided into the total screen and regional guidance information screen. The total screen is installed at the main entrance of the parking lot. It should avoid the sun and rain as much as possible. The lowest point of the height screen is higher than the limit of the parking lot. The stainless steel rope with a diameter of 3mm-4mm is hanging vertically above the intersection.
11. In order to avoid damage or failure caused by intentional or unintentional touch, the regional controller should install as much as possible on the wall with a height of no less than 2 meters from the ground.
12. Other unruly places, refer to construction guidance or relevant industry standards.



5. System structure diagram



6. Installation method





7. Software

一: Software Installation

232 serial line driver	2021/7/30 9:53	文件夹	
Main control board serial port to TCP	2018/6/25 14:13	文件夹	
Remote software	2018/1/2 14:52	文件夹	
USB485 converter driver	2021/7/30 9:53	文件夹	
error	2018/1/15 12:56	文本文档	1 KB
Installation Notes	2021/7/30 9:56	文本文档	1 KB
jre7	2015/6/24 18:32	应用程序	28,818 KB
MYSQL_Setup_V5.0	2018/1/2 16:37	WinRAR ZIP 压缩...	15,547 KB
output	2018/1/15 12:56	文本文档	2 KB
ParkingGuidanceSystem_V1.24_en	2018/7/31 19:01	应用程序	76,234 KB
PGSTool_en	2018/4/4 13:44	应用程序	7,961 KB

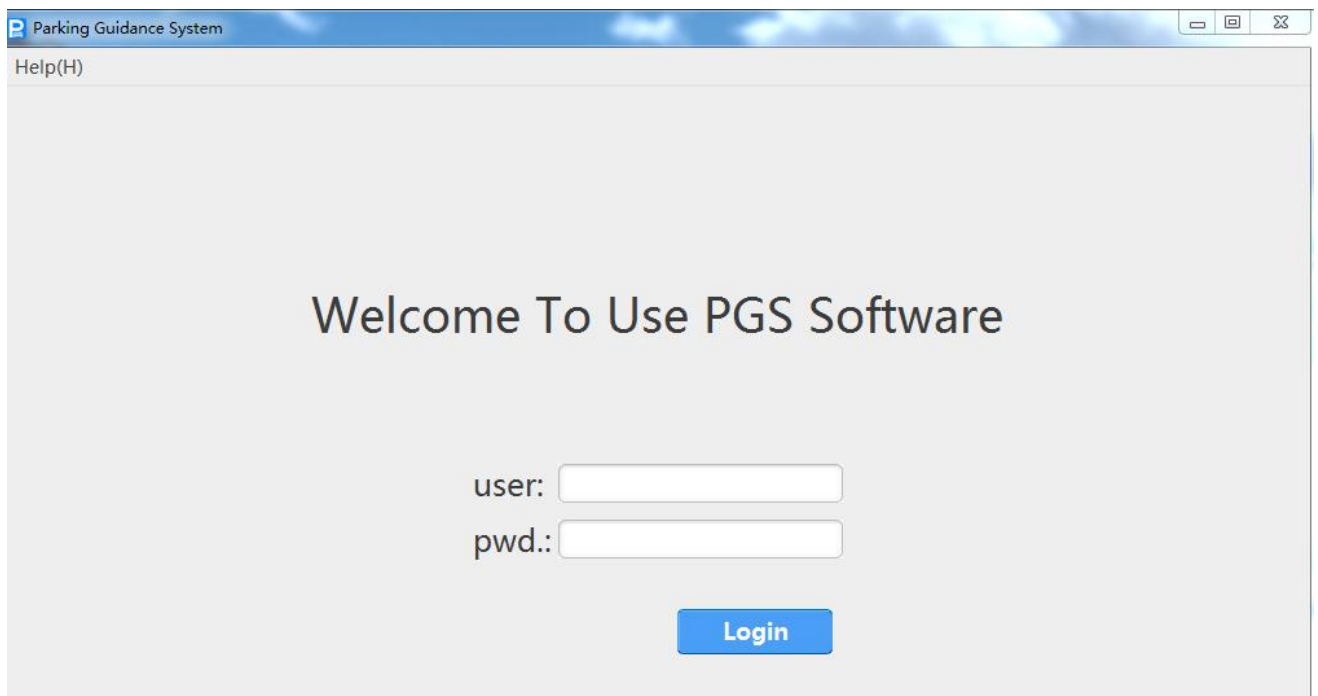
1.How to Install the software

Example: 1、 Click jre7.exe to install jre firstly

2、 Then Click MYSQL_Setup_V5.1.exe to install mysql

3、 Clcik ParkingGuidanceSystem_V1.24_en.exe to install the main program

After finish all the 3 steps installation then click the installed software and the default user is admin with password is 123456





二: Controller and Detect sensor and Display Screen Set Up

1.Double click PGSTOOI_en

serial parameter

Serial port: COM1 baud rate: 115200 open serial port close serial port

data operation device authorization display settings Test LED

When connect with controllers the baud rate is 115200
When connect with sensor or display screen the baud rate is 9600

sync time Get CON. ADD. Online CON. ADD.: Get CON. device Get CON. type Get status

CON.: line: detector: Get status CON.: line: detector: Set LED
detect distance(DM): Set distance Display: normal

Detec. LED WLN. Factory Set the type online mo... offline mo... Set working mode
detector address: Set the address detect distance(DM): Set distance A key set

device list

main CON.: 0 sub CON.: 0 detect distance(DM): 0 WLN.: 0 LED: 0

LED: Download

parking status:

receive information

clear

Software version: V2.15



2.Controller set up

串口参数

串口号: COM9 波特率: 115200 打开串口 关闭串口

数据操作 设备授权 显示屏设置

同步时间 获取控制器地址 在线控制器地址: 1 获取控制器设备 获取设备类型 获取探头状态

控制器地址: 探头地址: 获取某探头状态 控制器地址: 探头地址: 设置LED灯显示

探头探测距离(分米): 设置探头探测距离 显示方式: 正常车位

探测器 车位屏 无线灯 出厂模式 广播设置类型 在线模式 离线模式 广播工作模式

探测器地址: 广播设置地址 探测距离(分米): 广播设置探测距离

设备列表

主控制器: 1 分控制器: 1 探头: 13 无线灯: 0 显示屏: 0

主控制器-1 分控制器-2 探头-0 探头-7 探头-1 探头-2 探头-3 探头-4 探头-5 探头-6

点击获取当前控制器下设备数

接收信息

ptc_handshake_index:2
ptc_handshake_index:3

清除

serial parameter

Serial port: COM1 baud rate: 115200 open serial port close serial port

data operation device authorization display settings Test LED

sync time Get CON. ADD. Online CON. ADD.: Get CON. device Get CON. type Get status

CON.: line: detector: Get status CON.: line: detector: Set LED

detect distance(DM): Set distance Display: normal

Detec. LED WLN. Factory Set the type online mo... offline mo... Set working mode

detector address: Set the address detect distance(DM): Set distance A key set

device list

main CON.: 0 sub CON.: 0 detector: 0 WLN.: 0 LED: 0

Device Linkage

LED: Download

parking status:

clear

Software version: V2.15



3.Display Screen Set up

串口参数

串口号: [] 波特率: 9600 打开串口 关闭串口

数据操作 设备授权 显示屏设置

选择显示版线路接口

线路接口: 0# 屏幕数量: 1

0#及1#为室内屏设置。室内屏可设置 单向 双向及三向屏。
2#--7#为户外屏设置。每路只能设置一个地址码。

显示屏设置

一屏 地址: [] 箭头位置: 左 箭头方向: 直行

按需求设置。

显示预览

设置操作

设置地址 设置箭头

点击设置

软件版本: V2.03

serial parameter

Serial port: COM1 baud rate: 9600 open serial port close serial port

data operation device authorization display settings Test LED

Connected with display the baud rate is 9600

we were here for the operation

Select the display line interface

line interface: 0# Number of screens: 1 Rolling

#0 and #1 is for indoor display set up and it can for single ,double and 3 directions
#2-#7 is for outdoor display set up

display settings

LED 1 Add.: [] arrow position: left direction: strai...

show preview

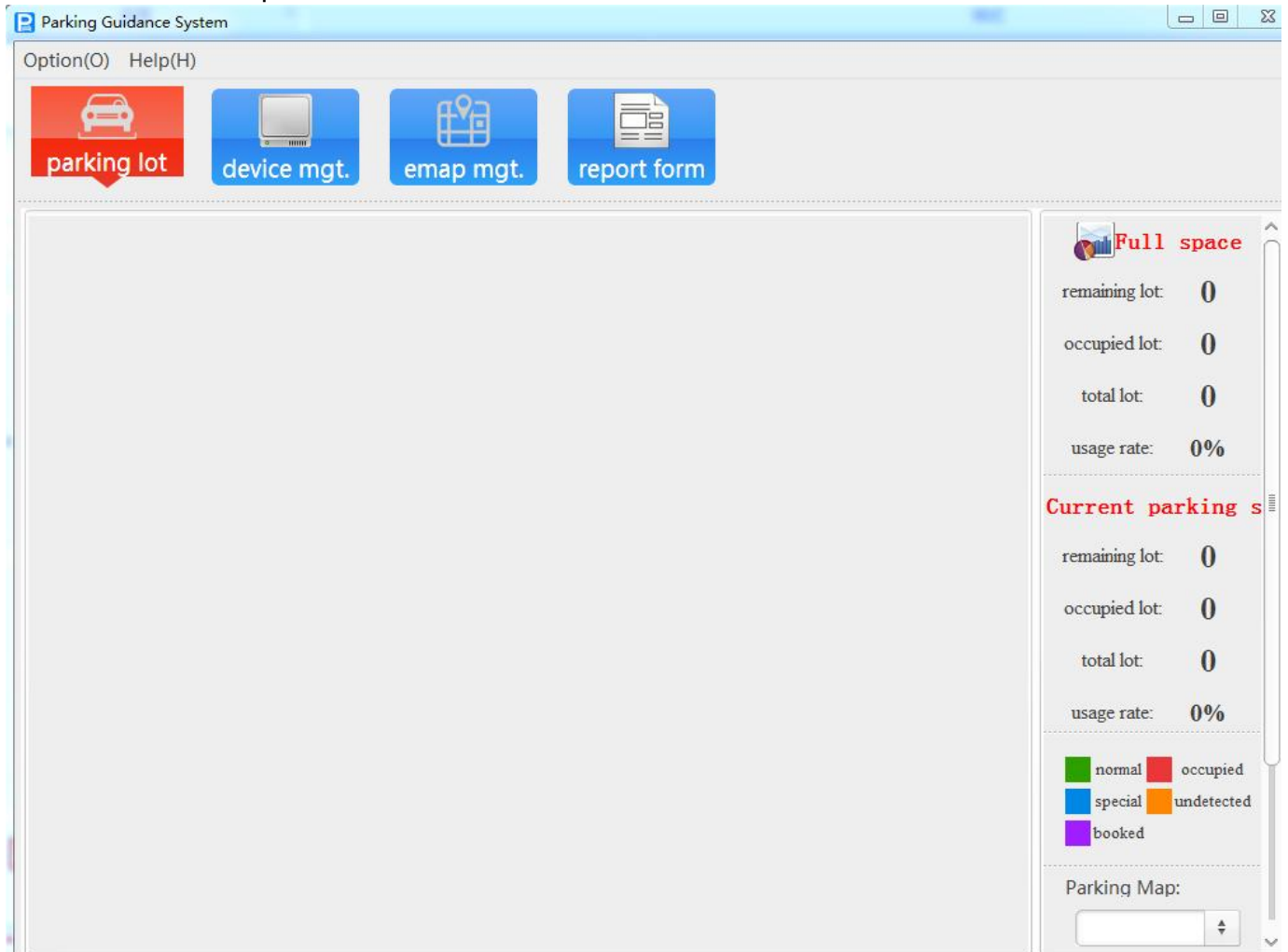
set the operation

Set address Set arrow A key set

Software version: V2.15



三: Function Descriptions



This software is mainly used for hardware configuration of parking lot guidance, area planning, and real-time display of parking lot status. After the configuration is completed through this software, the parking guidance system can be used offline (except for the reservation function)

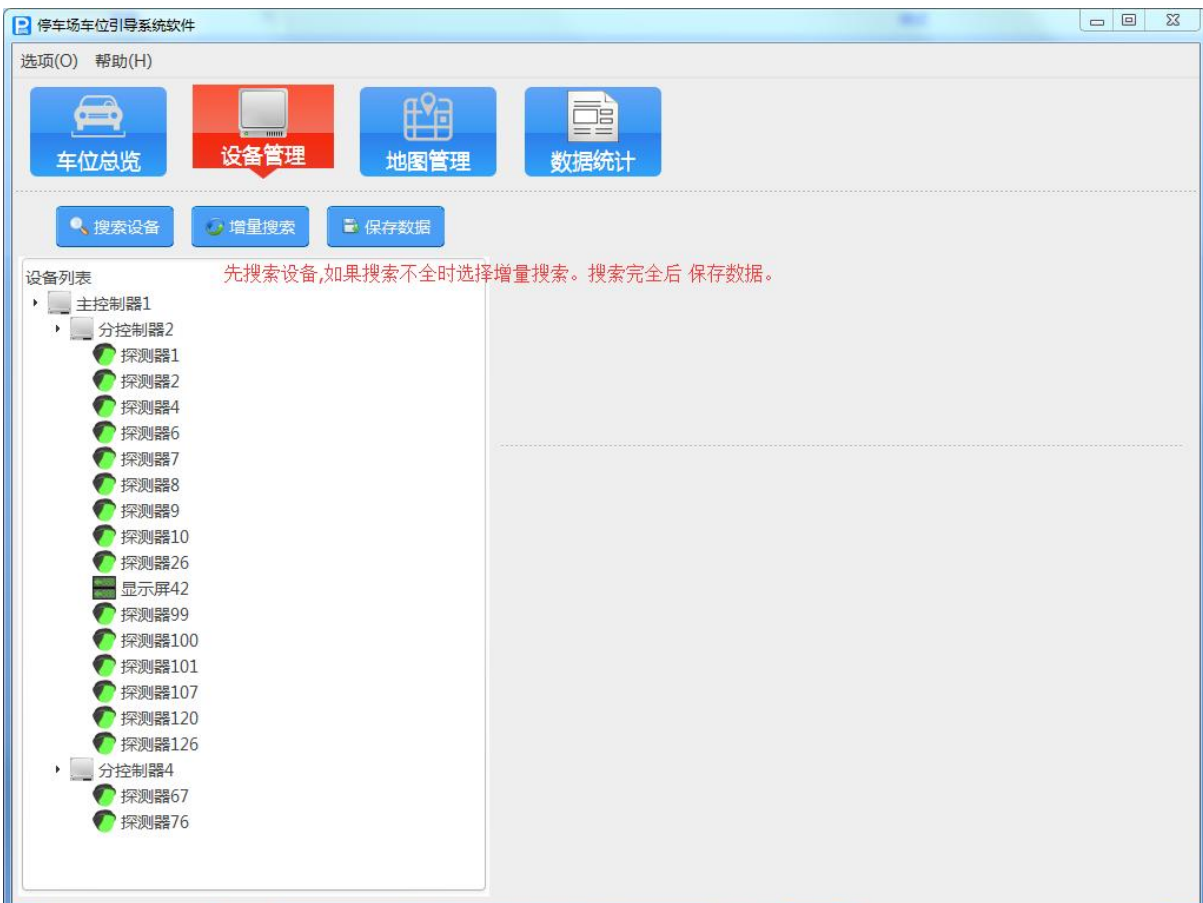
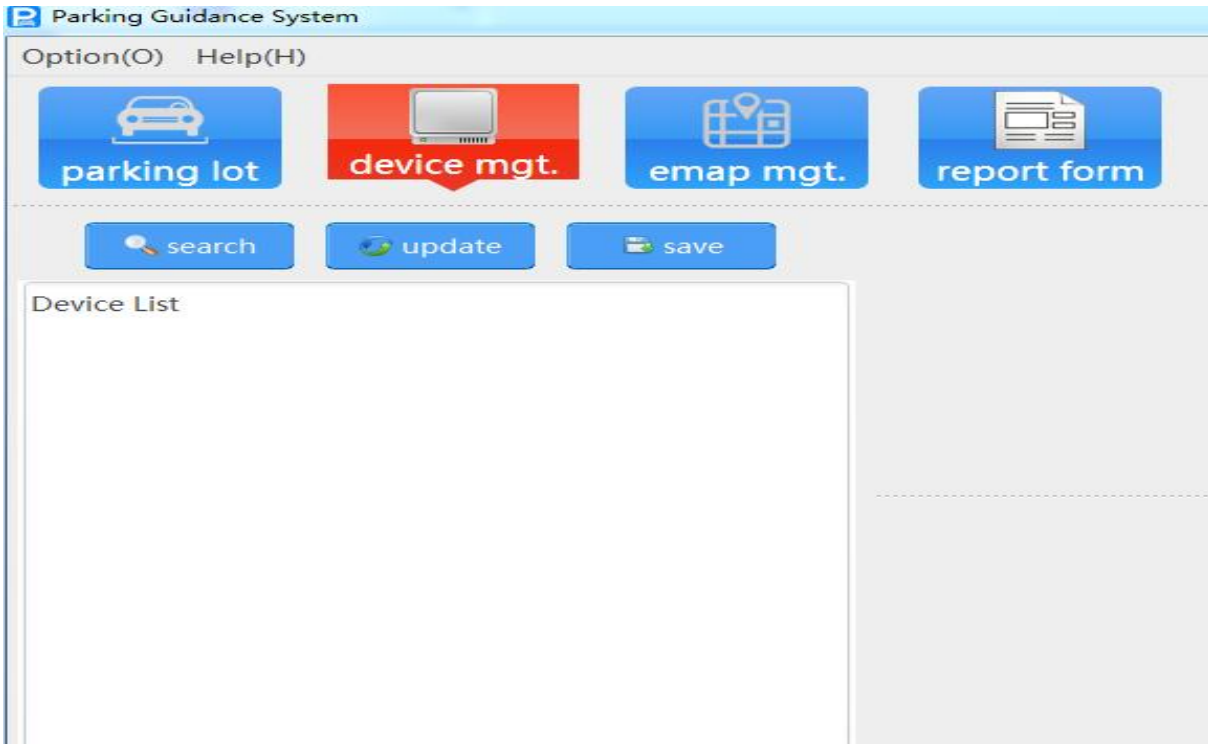
The corresponding function buttons are displayed on the top of the interface: parking space overview, equipment management, map management, data statistics, the left side displays the corresponding electronic map, and the right side displays related information such as data analysis.



Equipment management

Click "Device Management" to enter the device management interface, as shown in the figure below

Search for devices first: A tree-shaped device list will be displayed on the left of the search. If the device search is not complete, click incremental search. The search is completed and the data is saved.





Map management:

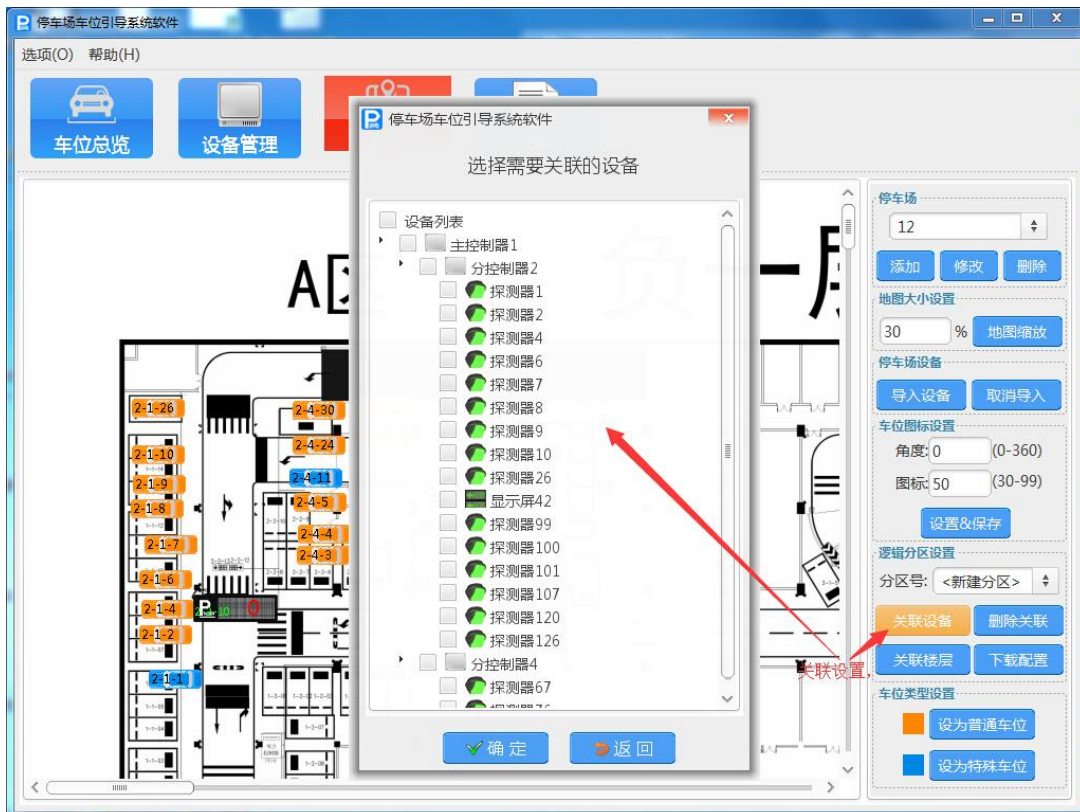
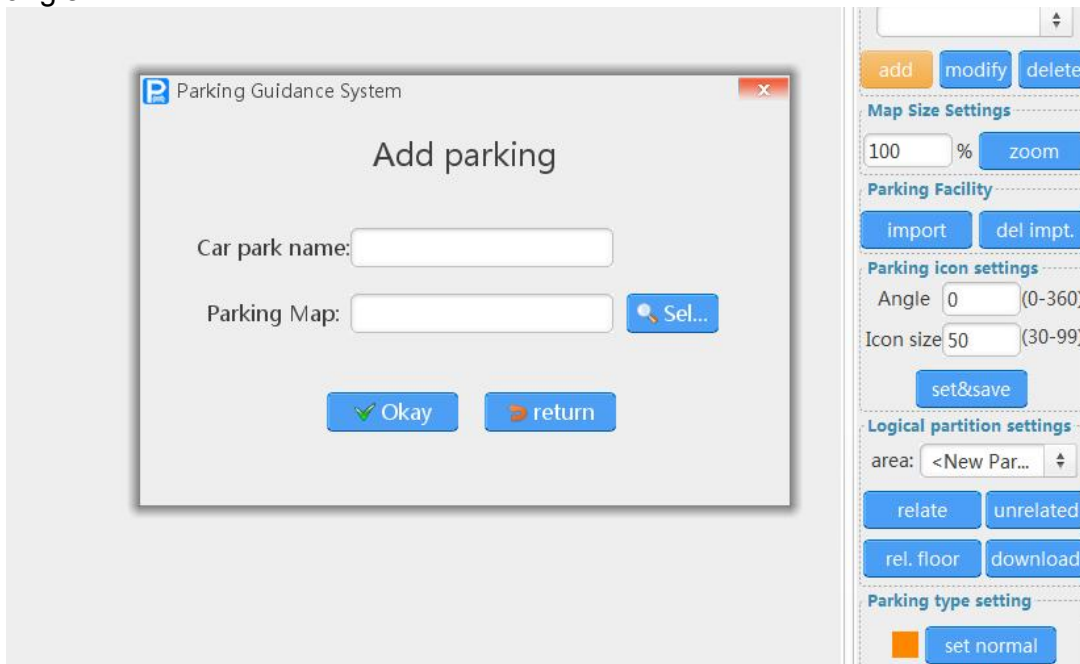
Add electronic map to name the map name

Map zoom: adjust the map to fit the size

Import device: Import the device that has been saved before. One-click import or selective import of some devices

The device import port is displayed in the upper left corner of the software, hold down the left mouse button and drag the icon to the corresponding position

Parking space icon settings: Imported device icons can be selectively adjusted in size and angle





Report Form:

Operation and maintenance analysis

Click "Operation and Maintenance Analysis" to enter the operation and maintenance analysis interface.

Here provides statistics on "Park Flow Statistics", "Park Space Utilization Rates", and "Parking Space Utilization Rates". After selecting the start time and end time, click "Query" to generate the corresponding operation and maintenance analysis.

