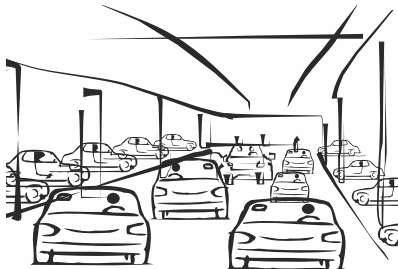# Parking Guidance Systems

Current Situation of the Parking lot

Parking your car during the busy hours at any public place is a proven pain and with an ever-increasing number of vehicles in a developing economy this pain is worsening every day, even though large scale parking lots are also growing and these can accommodate many vehicles, yet, many problems still exist due to multiple floors, Zones, distributed parking spaces and an absence of parking guidance to the drivers of the vehicles.

- In a Large and Busy parking lot, drivers cannot quickly find an available hidden space due to many cars, which results in traffic congestion and "NO Parking" in-spite having many slots available.
- Manual Processes Lower the service efficiency at the parking space.
- Several People are employed to ease the congestion and this increases the operating costs.
- Many Static directional signs increase the operating costs without achieving an efficient parking guidance and real-time availability updates.
- Traffic congestion leads to a higher noise and emissions and affects the health and environment.

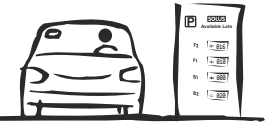
What is Solus Parking Guidance System?

SOLUS parking guidance systems can effectively solve the problems of a traditional parking lot. It uses an ultrasonic detector to test the parking status of each parking space, guidance screen and parking lights to guide the customers who are driving into the vacant parking spaces. It can reduce the traffic congestion while quickening the vehicle turn over, which helps in raising the parking usage and the parking income. Research has shown that with a guidance system in place,

- The peak hour parking space occupancy increased by 8%.
- Parking spaces utilization increased by 3%.
- Carbon dioxide emissions decreased by 56%.
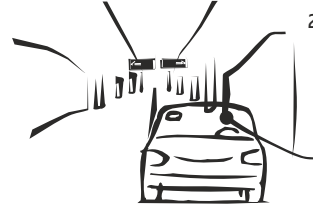- The operation costs decreased by 1-3%.

The advanced digital parking guidance system helps to realize quick parking without wasting time. An efficient and convenient parking experience from SOLUS provides:

1. An external combined guidance screen that uses an advanced LED display technology, that enables you to see the information of vacancies even from a long distance.
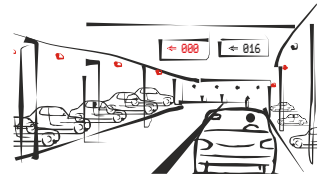
2. The internal area guidance screens display information about the vacant parking spaces of specific areas that helps you to find the right places.

3. The guidance screens show the driving directions and the number of vacancies, that helps you to find vacant parking spaces quickly.

4. If the light above is green, it means that the parking place is vacant; and when a vehicle is parked, the light turns red. The ultrasonic detector can set its detectable range, that can accurately detect different heights and different types of vehicles.
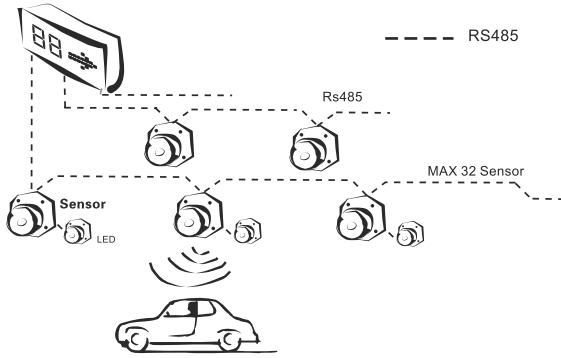
Solution 1 (Standard) up to 50 Parking Lots

The basic version of parking guidance suitable for small size car parks provides information about the available parking lots only at the main entrance. Driven by Vehicle count loop and Access controlled Boom Barrier, available lot count is reduced by each entry and increased by each exit.

Main Components : Boom Barriers with detection loops, Information LED Display, Smart Card Reader and Dispenser (Optional).
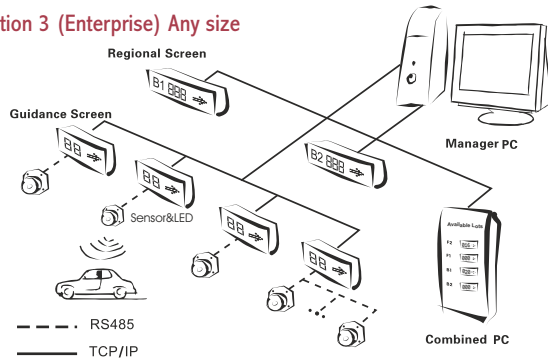
Solution 2 (Professional) up to 200 Parking Lots

In the advance version of the parking guidance system, each parking lot is fitted with an ultrasonic detector and Indicator light. Hence, the Information displays at the main entrance and at internal junction points are driven by the real-time occupancy detected by the ultrasonic detectors. An Indicator LED light turns RED when a parking lot is occupied and the status is sent to a Zonal Control Unit on RS 485 or on Wireless Control Unit in turns updates all connected LED information displays. Each Zone Control Unit can have 8 loops of 32 Detectors. Thereby supporting 256 Car parks with 8 Information LED Displays. All Zone Control Units (ZCU) need to connect up with the Central Control Unit, that can optionally be connected with Central Parking Management Software.

Main Components : Boom Barriers with detection loops, Information LED Display, Smart Card Reader and Dispenser (Optional), Parking Detectors, Occupancy Indicator, Zone Control Units and Central Control Units.

Solution 3 (Enterprise) Any size

This Most Advanced online solution uses an IP Camera over each Parking lot along with the Parking sensor and Status Indication LED. Parking space image information by Camera is sent to the Centralised Server PC on TCP/IP network on a real-time basis. An intelligent image processing software at the back-end extends "Car Find Feature" using Car find Kiosk beyond parking guidance. This also guides the way to reach the parked car with the path. This search application can also be extended as a mobile application using Android, iOS or Blackberry Mobile phones. An Analytic reporting for usage occupancy and timing is generated to improve the operational efficiency and planning. The software supports web search, Graphic User Interface and E-map function.

Main Components : Boom Barriers with detection loops, Information LED Display, Smart Card Reader and Dispenser (Optional), Parking Detectors, Occupancy Indicator with Camera, Zone Control Units, Central Control Units. Central Parking Management Software and Parking Search Kiosk.

Functions & Features-Ultrasonic Sensors

- **Modular design :** The users can choose ultrasonic detectors and indicator lights separately or choose the combined two-in-one ultrasonic indicator standalone according to the site requirements.
- **Indoor / Outdoor:** Unique ultrasonic transmit / receive integrated design enables a wider range detection with 50cm - 3m flexible adjustment of the detection range.
- The detector sends out ultrasonic signals from the top downward and accurately detects the presence of vehicles according to the analysis of the reflected waves from car-roof or the ground.
- The detector can accurately judge whether there are parking vehicles and transmits the signals to the guidance units through a high-speed Rs485 bus.
- The indicator light adopts 18 high brightness red / green LED lights. No visual blind spot, bright but not dazzling. It is expertly designed with the plastic shell of fireproof, anti flaming, safe and ovenproof.

Products Specification

Ultrasonic Detector

Model	S DUD-20 D
Input Voltage	DC16~24V
Rated Wattage	2W
Working Temperature	-25^{0}C to 65^{0}C
Working Humidity	5% - 95%(non-condensing)
Ultrasonic Frequency	40.0+1.0KHz
Detecting Range	1.2m-3.0m
Detecting Angle	About70
Communication Form	RS485, 9600bps
Colors of the Lights	No

DUD-20D Detector

Indicator light 1

Model	SDUD-20L
Input Voltage	DC16-24V
Rated Wattage	0.5W
Working Temperature	-25^{0}C to 65^{0}C
Working Humidity	5%-95%(non-condensing)
Colors of the Lights	Red / Green
States of Parking Spaces	Red-Occupied Green – Vacant Red and Green flashes - Reserved

DUD-20L Indicator Light

Indicator light 2

Model	DUD-20LD Standalone
Input Voltage	DC16~24V
Rated Wattage	2.5W
Working Temperature	-25^{0}C to 65^{0}C
Working Humidity	5% - 95% (non-condensing)
Ultrasonic Frequency	40.0+1.0KHz
Detecting Range	1.2~3.0m
Detecting Angle	About 70
States of Parking Spaces	Red-Occupied Green – Vacant Red and Green flashes - reserved
Colors of the Lights	Red / Green
Communication Form	RS485, 9600bps

DUD-20D Standalone

Functions & Features-Information Display

- Each guidance screen can manage 96 parking spaces through three RS485 buses of super ability and a high-transfer rate.
- In actual practice, the external screen that shows the total vacant parking spaces is controlled by the PC and can display the remaining vacancies of each floor and zone.
- High brightness LED indicators, clear and bright without glare, and the visual distance is not less than 20 meters under direct sunlight.
- The case uses a deluxe steel frame and the special multi-variant fixed structure makes the installation more convenient.
- The design is small and exquisite, double LED light is highly bright and the writing is legible and clear.
- The arrows in the guidance screen can be flexibly adjusted according to the site environment.
- Precise numerically controlled cabinets and high-quality UV-static spray.

Products Specification

Information Display 1

Model	SDLS-120P
Power	24W/AC220V TCP/IP
Communication Form	TCP / IP
Material	Steel frame, Plexiglas panel
Working Temperature	-25°C to 65°C
Working Humidity	5% -95% (non-condensing)
Display Content	2 digil + 1 arrow

Information Display 2

Model	SDLS-230/DLS-230D
Power	60W / AC220V, 30W / AC220V TCP/IP
Communication Form	TCP / IP
Material	Steel frame, Plexiglas panel
Working Temperature	-25°C to 65°C
Working Humidity	5% - 95%(non-condensing)
Display Content	Region No.+3 digit+ 1 arrow/ 2
	(Region No.+3digit+1 arrow)

Information Display 3

Model	DLS-X3
Power	200W/AC220V
Communication Form	TCP/IP
Material	Steel frame, Plexiglas panel
Working Temperature	-25°C to 65°C
Working Humidity	5% - 95%(non-condensing)
Display Content	Customized

Software Features

Data Sharing WEB client is easy to operate and facilitates users to remotely log in to check the parking information at any time.

Functions of Report Forms The software can generate reports and forms according to different client specific requirements. It can gather statistics of utilization ratio daily. monthly and for different time-periods and these can be shared over mail or can be printed. The analysis of the report forms can help to understand the service conditions of the parking lot and carry on the management effectively.

Automatic Statistical Function for Parking Spaces The system calculates the remaining parking spaces automatically and reconciles collection information statistics and report variances.

E-map Functions The layout of the parking lot can be loaded onto the software and the states of each parking space can be shown synchronously and dynamically. Different colours are used to mark the different states of the parking space.

Mobile App Extension Enterprise Solution users can extend a Mobile app for their users to find a parking lot by giving their car number.

We Provide ....

SOLUS has an excellent and experienced team that can design rational and perfect solutions for different scenarios

It is hard to find a vacant parking place in a parking lot where there are a lot of vehicles that are parked. You can judge the state of parking spaces according to the colors of the indicator lights. If the light is green, you can park your car in the parking space beside it

With efficient design, Even in a complex space, you can find vacant spaces without losing time. The guidance screens show the driving directions and the number of vacancies.

Even in the peak period of the parking, the drivers can still park quickly with the help of the guidance information

Even the only left vacant parking space can be quickly found by the driver according to the guidance screen and indicator lights.

If the present area is full, you can find the next area according to the guidance screen show.

Functions & Features-Parking Guidance System

- The SOLUS Parking management system is very simple and easy to operate. It provides a WEB client enquiry function that is convenient for the users to check the service condition of the internal parking spaces.
- SOLUS guidance systems can work without using other transit facilities like controlling and transporting. The strong functional modules such as data statistics and display are integrated into the guidance screen, that simplifies the complicated guiding process and avoids data loss and time delay caused by the data conversion.
- Through the TCP / IP network, the PC can control the management system. The hardware is still able to do the guidance even in case of network constraints.
- The indicator light adopts to 18 high brightness LED lights, has virtually no visual blind spots, is bright but is not dazzling.
- The guidance screen adopts the modern design of an ultra-thin frameless mirror with a wide viewing angle and its quality is high and the appearance is elegant. Using double high - brightness light-emitting LED lights inside, the digital display is clear and bright.
- The detector adopts low-energy-waste and an environment - friendly ultrasonic transceiver design, with the ability of strong anti-interference, high stability and accurate signal-receiving.

Your Choice

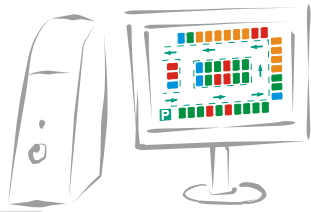As an investment project, the parking guidance system is the right choice for you.

- Accelerates the turnover of vehicles and improves the utilization of parking spaces.
- Increases the number of parking cars and brings in greater profits.
- Improves customers' loyalty and optimizes the occupancy rate.
- Automatic induction decreases the cost of labor monitoring.
- Reduces exhaust emissions and decreases the pollution significantly.
- Simple and convenient management and control by the software.
- Fault self-test, easy to maintain and protect.
- Daily, weekly, quarterly and annual real-time data count.

Benefits for the Car Owners

- The internal indicator arrows that are clear and accurate can help you get parking.
- Digitals displayed at the screens are visible even at a distance of more than a hundred meters.
- Reduces fuel consumption and saves time.
- Quick parking is much safer and is more convenient.
- Easy parking brings a pleasant mood.

SOLUS

- SOLUS is a leading manufacturer of security products and provides a wide variety of product types, colours and designs combined with an up-to-date operation.
- Each product from SOLUS is designed to balance the needs of the aesthetics, security, ease of use and flow rates demanded by different environments. SOLUS factories are automated and technologically advanced.
- This commitment to quality and innovation has enabled SOLUS to produce the latest innovations in the security products.
- Each one of the SOLUS employees is extensively trained to produce superior products. This is essential in reaching SOLUS' company-wide objective of 100% customer satisfaction.
- Most of the SOLUS' business is from repeat customers who consider SOLUS as their supplier of choice.

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