

GUANGZHOU TECTRON

Intelligent Parking Pay System Management

One entrance & One exit / Auto-dispenser / Image comparison / Middle range card reader for season user

I. Summarize

With the increase of motor vehicles, vehicle management put forward higher request. The way of artificial management in the past can't meet the needs of the development of modernization, aiming at high speed, the fast rhythm of the working pattern, management methods and the system have a basic improvement. Those improved not only adapt to the requirement of residential area, but also must adapt to the needs of society, meet people's demands, habit needs and senses. But by present, there is not any high-tech product can entirely instead of human manual operation. It cannot completely replace the people's thinking and way of thinking. Therefore when we are deal with automation management system design, as far as possible, emphasize automation but should not be neglected in the manual intervention, if can combined skillfully those two factors, it will reach twice result with half effort.

Especially for high-grade residential area, according to its exist design to customizely install a set of perfect function and elegant appearance of intelligent management system, which can reflect its class and specifications and increase the content of science, as well as technology management. It benefit from establishing residential high-level management and increasing reputation of building as well.

This design is based on the above, specified to the actual situation of the vehicle management and combined with modern technology to complete.

TECTRON Parking intelligent management system with high performance and competitive price and perfect management function and become one ideal solution of parking lot of intelligent management

The system adopts the most advanced inductive smart CARDS, cooperate with the management of industrial microcomputer control technology and the electromagnetic induction technology, with multiple entrance networking operation technology, stable and reliable, low failure rate and easy operation etc., as well as abundant management function, ensuring the reliable of parking charging and vehicles safety parking.

TECTRON parking management system with powerful data processing function which can relize the function as: completion of various parameters setting, collection of data and statistics, management of various induction card, including IC/ID card etc.

II. Functions

- System using standard protocol of the physical layer, data link layer and network 3 layers, architecture model, thereby ensuring system of real-time communication and data exchange of safety and reliability.
- For inductive card can undertake various operation and operation function setting; Various cards to adapt to different user requirements.
- Super capacity: can reach up to 1,000,000 stored records
- User defined charging standard, providing calculate time and discount monthly pay etc, flexible billing function.
- Effective function setting card read when car pass by
- Achieve one car with onecard, "prevent turn-back" function.
- Provides the opening or closing of barrier control commands.
- With such status function as internal state, barrier state, vehicle detection stata and reset function.
- System can realize manual control and automatic control
- Alarm function for illegal operation and fault detection
- System has its automatic fault detection & diagnosis, self-replacement function.
- System has strong resistance interference function.

➔ System realize the route management module at its real meaning, all external equipment cascade into routing management model physically, if one module routing equipment malfunction, other part is not affected. data communication automatic control of each distribution equipment are independent and isolate to complete, with high reliability, good scalability and easy maintenance.

III. programme description

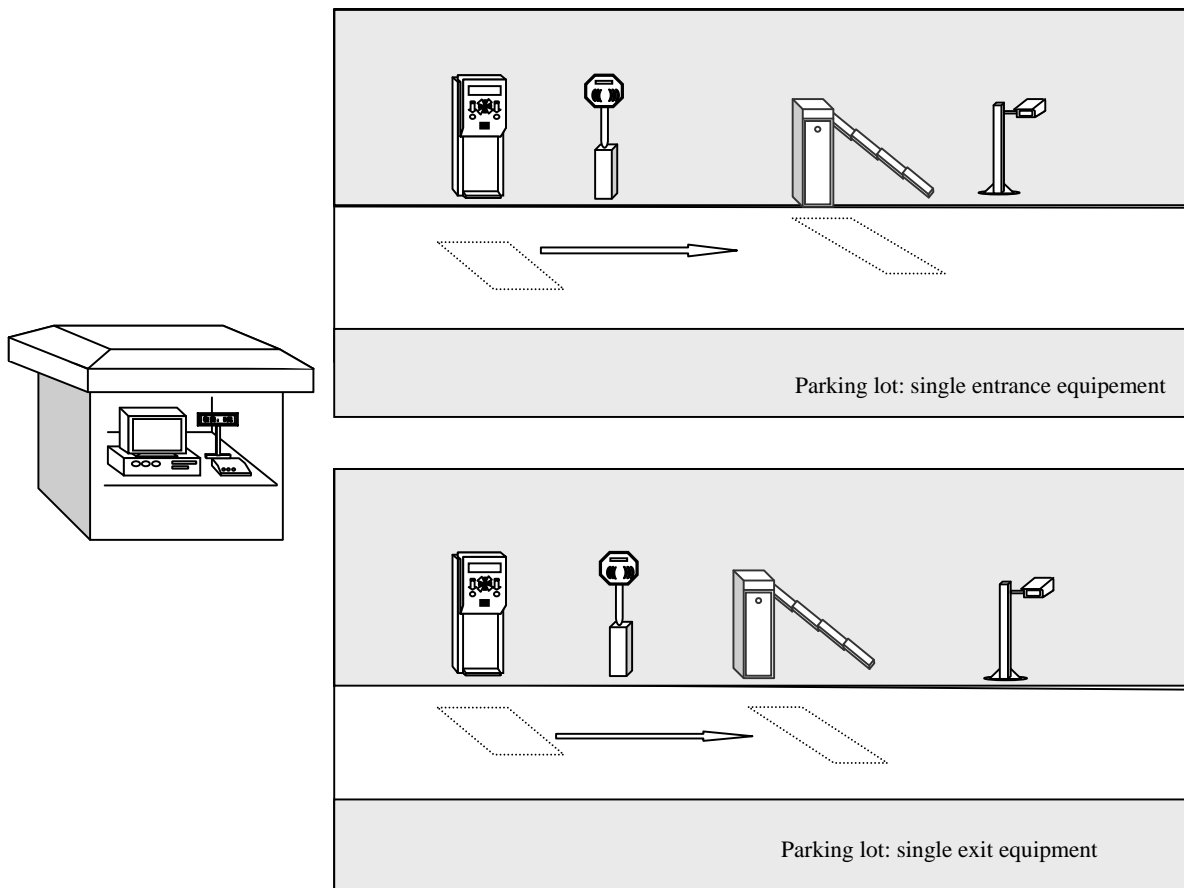
The features of this scheme is utilizing the configuration of “one entrance and one exit” standard parking system and adopting the toll station mode.

Characteristic as follows:

- a) Temporary user press button to get card when entry
- b) When the temporary user exit, they must pay charge in the toll station frist,then put the card into the card reclaimmer, finally the barrier gate will open
- c) When the month user entry or exit, swiping their month card in the middle range card reader, then the barrier gate will auto-open
- d) Snap photograph and comparision for temporary car and month car are available
- e) Parking card using intelligent induction ID card

Parking lot equipment chart:

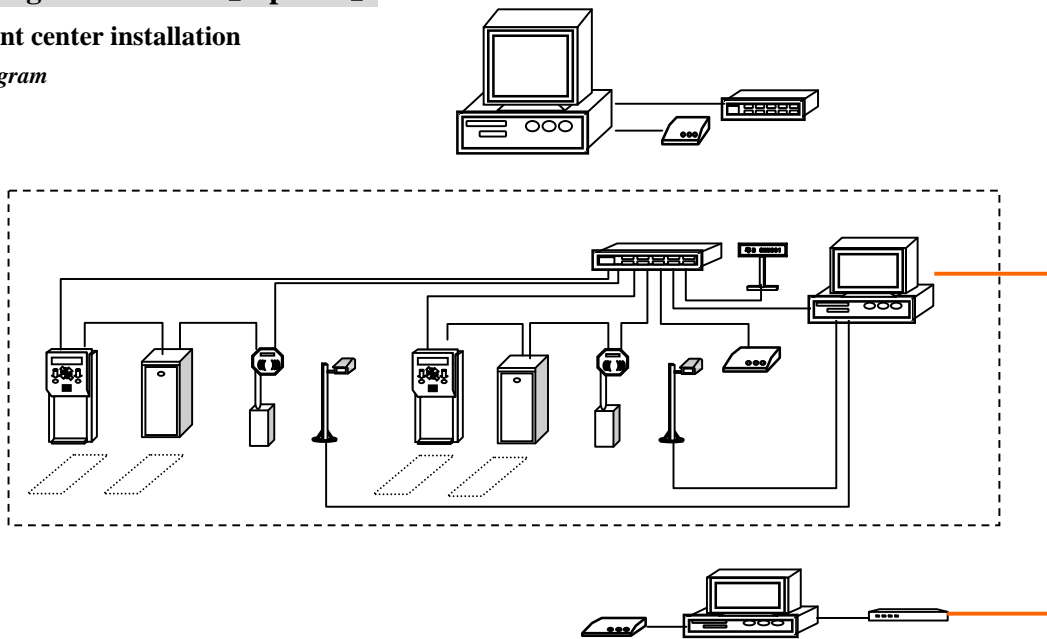
- **Parking lot Entry & Exit System Diagram:**



● Management center 【Optinal】

Management center installation

System diagram



Single entrance equipment: one unit of card dispenser、one unit of middle range card reader(for season card user)、one unit of barrier gate、two unit of vehicle detector、one set of camera module

Single entrance equipment: one unit of exit with auto-reclaime、one unit of middle range card reader(for month card user)、one unit of barrier gate、two pcs of vehicle detector、one set of camera module

Single exit charge equipment: Computer (provided by buyer) 、one unit of Data acquisition controller、one unit of desktop card reader、one unit of charge display screen

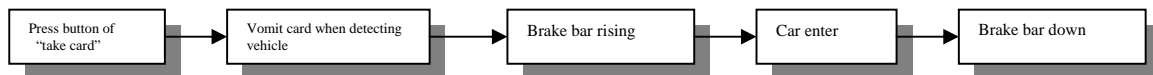
Administration center 【optional】 : Computer (provided by buyer) 、 Network equipment、one unit of desktop card issuer

IV、Brief Flow chart of Entry & Exit

Temporary car operation flow:

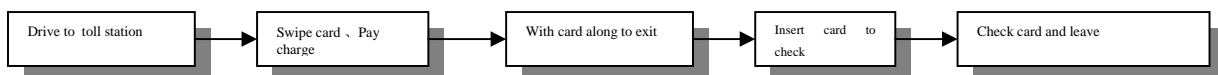
According to the exist structure of the parking lot, install one card dispenser in the entry which use for temporary car ower to press button to gain card and install one computer in the exit security house aim to charge.

A. Temporary car enter flow:



When the temporary car enter, first press button of “take card”, the entry controller detecting car then issuing one temporary card, the braker bar rising as well. Meanwhile the photograph of the entering car was took. Finally, the barke bar down after the car passed by. This system has already been stored vehicles’ information including entering time and others, formed a record.

B. Temporary car leave flow:

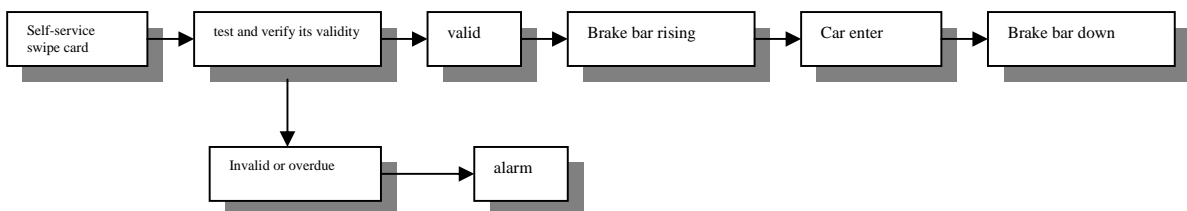


Temporary car leave steps: firstly, pay charge in the toll station and return the card which issued by dispenser to security guard, who according to charge display screen number to do fee charging and give back the card to the driver. Secondly, the driver will insert the card into the exit reclamer. Finally, after it successfully check the card, the brake bar will rising up and car leave. Meanwhile the car photograph was took and save in computer as well.

C.Season car operation flow :

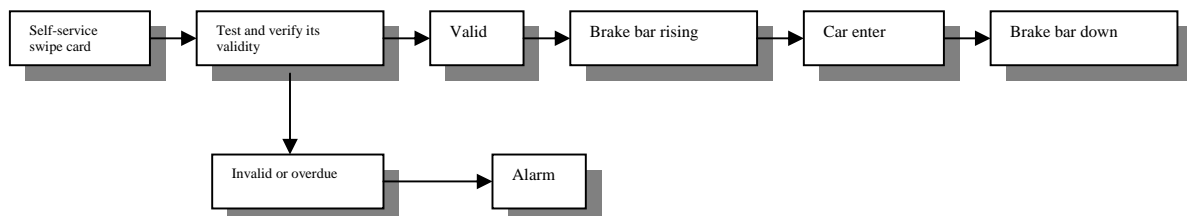
In order to facilitate the regular user(season user)enter and leave, **mid-range external inspection card readers** were installed in the entry and exit location in our design. The sensing range can be up to **30-90 cm**(different sensing range from its environment and card stype). Compare with the normal card reader which can read card within10cm. When the driver down the window to swipe card will cause a little big inconvenient especially in rain or summer.Opposite, if using the **mid-range card reader** which can induct the card through window glass and those inconvenient factors can be settled.

D. Season car enter flow:



When the season car enter into parking area, only need to swipe card within 30-90cm, then the **Mid-range card reader** will test and verify its validity quickly. Finally will open the brake bar to allow car in. Also in our system this can be formed a record.

E.Seaon car leave flow:



When the season car leave parking area, only need to swipe card within 30-90cm, then the **Mid-range card reader** will test and verify its validity quickly. Finally will open the brake bar to allow car leave.

V. The registration&issuing &report the loss of parking card

The registration and issuing parking card in the management computer, the administrator with password allow to enter into software to achieve the registration temporary card, or issuing season card. It's only allow the administrator who have password to register the card

(1)card register:

Firstly set system password, this step only be allowed to operate by administrator.

(2) issuing season card:

Open issue card menu and fill in corresponding message by required,such as: owner, plate number, contact info.ect.

(3)The card will be valid only after registered by this software. Otherwise should not be used in this parking system.

(4) Operator turn-shift: The operator should log in by password to print report and handover to another person who on duty.

VI. Management software functions

1、 Vehicle database establish

Provide vehicle database establishedm function, input in advance such useful information as plate number, name and telephone number of owners to achieve the establishment of a complete vehicle management database.

2 、 Vehicle enter & leave record

The system recognize all of the entering vehicle records and can provide the corresponding information when one car leave. Also the car image have kept in the computer.

3、 Vehicle query

With vehicle query function: i.e. the administrator can query any enter or leave cars data in any time. The methods can be choiced as follows:

- (1) According to enter or leave site
- (2) According to the car plate number (suit for the month user)
- (3) According to the time, according to car stype
- (4) According to still stranded cars at present

4、 Traffic flow statistical functions:

Calculate any time and any direction enter& leave cars, generating traffic vehicles statistical report.

5 、 Special setting

Administrator can undertake interior vehicle settings like: specific vehicle alarm, specific vehicles temporary or permanent release and various parameters settings.

6、 Print detailed list

The administrator can print various detailed list as follows:

- (1)Printing according to the same time enter or leave vehicle
- (2)Print the status of the cars still stranded in the parking lot
- (3)Print blacklist of the cars
- (4)Print all of the parking cars

7、 Control of car--card consistent

While register season card, the administrator should full in such informations as name, telephone and address and the car plate number, models (etc), also take one original car picture to form a complete record when issuing one card which consist of one complete registration database.



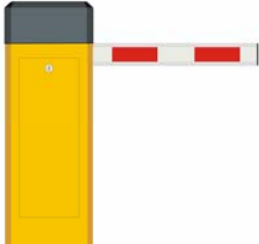


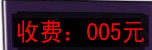
When the season car enter and the system capture car's picture and automatic verify its ID/IC card, if it's effectiveness the barrier will open to allow car enter. But the system with strict verification procedures when the car leave. That is while the driver swipe car to leave, our system will take one picture, also will show two pictures which took previous to compare by security person, one is took when car in, the other the registration picture. If it's consistent , the car will be allow to leave.



Through this strict enter and leave verification procedure will eliminate many illegal behaviors, such as holding IC/ID card to steal car, which ensure the safe and efficient operation in parking lot.

8、 Voice offer function

When the temporary car leave and pay charge, there is charge detail display in the screen with voice prompt, which seems more hommization. The attendants not need to do much explanation. Besides, the software support different language stype to output the offer information. Such good interaction system ensures charge smoothly.

VII.Main Equipments

	Card Dispenser	Item No.	PBS-4000E
<ul style="list-style-type: none"> Nice appearance, Smart design Voice prompt with welcome words and operating instructions. Electronic English screen While vomiting a card, the card be completed writing, as soon as take away the card, the barrier open. No card, automatic alarm 			
	Middle range card reader	Item No.	PVS-1100B
<ul style="list-style-type: none"> Nice appearance Be Installed outdoor Dirrectly connected to control center, easy control Middle range card read, convenient for month user to entry or exit With status indicator function 			
	Barrier gate	Item No.	PGB-500
<ul style="list-style-type: none"> Integrated structure, turbine worm transmission, stable operation Various control method Arm length: 2~6M are available 			
	Vehicle detector	Item No.	VDM-1000
<ul style="list-style-type: none"> Digital frequency mode; Adjustable sensitivity and automatic promotion circuit Loop detecting frequency auto-detection Pulse and electrical level output. 			
	Data acquisition controller	Item No.	DCA-200P
<ul style="list-style-type: none"> Communication interface: RS232/RS485 Buid-in both communication interface and power status LED indicator External devices can be connected directly 			
	Charge display screen	Item No.	PDF-0240

	<ul style="list-style-type: none"> ● Desktop installation ● High dot matrix module, Chinese and English display. ● Can display various information. 		
	Independent desktop card issuer and readers	Item No.	DCD-1000E
	<ul style="list-style-type: none"> ● ID card and month card issued or register (Temporary card and Month card register) ● Temporary car exit, swiping card to pay charge. ● Communication interface two optional: RS232 and RS485 ● Build-in buzzer ● Build-in LED indicator 		
	Management software	Item No.	ATOM plus
	<ul style="list-style-type: none"> ● Peripheral management system by routing address ● Accurate billing and verification, summary and print ● Snap photographers and comparison, on file ● Perfect function, friendly interface, easy operation 		