UHF RFID Intelligent Parking Charge System

System building Introduction

UHF RFID Features

- WENSHING Electronics Co., Ltd was established in 1987, our major business line ranges from computer, electronics to communications including the design, manufacturer, production and sales in this related fields. We provide four UHF RFID long range readers: including Industrial Reader, Handheld Reader, Out-door Reader, and In-door Reader which operate in the frequency between 840~960MHz. All readers meet the standard of NCC.

- The reading range of the Industrial Reader can reach to 35 meters, 7 meters for Handheld Reader and 30 meters for Out-door and In-door Reader. Suitable for different passive tags and interfaces. All readers meet the industrial standard.

UHF RFID Features

- RFID readers can both write and read tag. Capable of handling more than 200 tags. Fast reading speed. Support the Logistics Management application of the entire supply chain. Cut down extra human labor cost. Precise on tracking position and quantity of the target. Increase efficiency and productivity. Decrease cost.

- There are different types of tags which are able to apply to all kinds of business and profession. No battery is needed and does not limit to any direction. Portable data. Great weather resistance. Long life time. Safe. No limitation from the environment. Permanently usable. Especially suitable for automatic or severe environment such as oily, high dust situation, etc.

System Introduction

WENSHING Electronics applies the UHF RFID technology into "UHF RFID Intelligent Parking Charge System". Using RFID technology to identify the vehicle owner's identity. It is convenient to count the parking time, calculate the parking charge, pay the fee and search for parking space intelligently.

This system includes hardware such as UHF RFID Tag, intelligent parking charge display stand, host server. Software includes intelligent parking charge system .

There is a huge advantage and prospect applying RFID technology in Intelligent Parking Charge System . It can accomplish counting the parking time, calculating the parking charge, paying the fee and search for parking space intelligently. It can cut down labor cost. Adopting two management project simultaneously can complete Intelligent Parking Management comprehensively.

System Framework

eTag

Intelligent Parking Charge Display Stand

Host Server

Intelligent Parking Charge Display Stand

1. **Camera**
   - Combine with vehicle license plate identification, the camera will take video and upload to the host server. Monitoring the video directly by using intelligent parking charge software system.
2. **UHF RFID Reader**
   - Read the vehicle eTag. Recording time and charge. 780MHz(depends on region).
3. **Infrared Ray Sensor**
   - Sense parking vehicle without eTag. After the parking vehicle is sensed, it will activate the camera to take picture of the license plate and start accumulating parking time.
4. **WiFi**
   - WiFi, 3G or 4G. Transmit parking time, charge, live video to the host server.
5. **LCD Monitor**
   - Provide vehicle owners to examine parking time and charges fee instantly. Provide users to open accounts.
6. **Card Reader Panel**
   - Support NFC and all kind of transportation card to debit (Easy Card, iPass, Octopus card, etc).
7. **RJ45 Interface**
   - Support optical fiber to transmit data such as parking fee, parking time and live video.
8. **Hint Projection**
   - Support projecting hint message on the ground of the parking space. It can accomplish showing humanized hint message.

eTag and Host Server

1. Using passive RFID agreement for vehicle. eTag is cheap, durable and battery free.
2. Good penetration and long distance, etc.
3. Intelligent parking charge display stand use 780MHz (depends on region) to sense eTag as identification object.

1. The function of the host server is to receive data such as parking time, charge, video, and data storage. Besides, it can also save all the data of the user account and the debit record.
2. It includes the intelligent parking charge software system to provide manager to examine parking space and live video monitoring.

Project 1-System Process

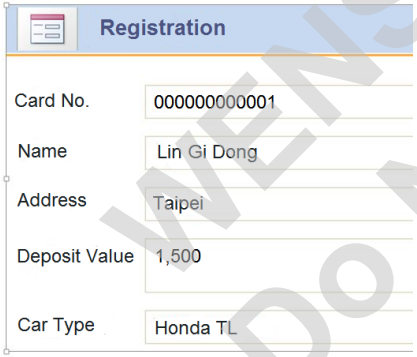
eTag

Intelligent Parking Charge Display Stand

UHF RFID Reader reads eTag.

Host Server

After the host server receives the signal of the vehicle information, it will start to accumulate the charge based on the parking time. It will also upload video for monitoring purpose. When the vehicle leaves the intelligent parking charge software system, it will debit the charge automatically.



Vehicle owners open account and deposit value.

Project 1- Hint Projection

WELCOME

Parking space is available.

OCCUPYING

Parking space is being occupied.

PLEASE DEPOSIT VALUE

The value of the parking card is insufficient.

Project 1-Users Open Account

The vehicle owners use their eTag to open account at the intelligent parking charge display stand. After filling in the vehicle’s registration information, user’s information and debit card, the account will be opened. The information will be stored by the intelligent parking charge software system.

Tag

Place the Tag on the vehicle.

Registration

Card No.	000000000001
Name	Lin Gi Dong
Address	Taipei
Deposit Value	1,500
Car Type	Honda TL

Project 1-Reading Vehicle Data

When the vehicle reaches the sensor zone, the intelligent parking charge display stand will read the eTag and transmit signal to the host server. The host server will link to the data of the owner and start to accumulate the parking time and start charging. The intelligent parking charge software system will show the parking time and charge simultaneously.

User Information

Card No.	000000000001
Name	Lin Gi Dong
Address	Taipei
Deposit Value	1,500
Charging Time	00:00:00
Consumed Value	0
Car Type	Honda TL

Project 1- Settle Parking Charge

When the vehicle is about to leave, the intelligent parking charge display stand will automatically transmit the data of parking time and charge to the host server. The intelligent parking charge software system will debit the charge from the card. The users can examine these information directly.

User Information

Card No.	000000000001
Name	Lin Gi Dong
Address	Taipei
Deposit Value	1,450
Charging Time	01:30:00
Consumed Value	50
Car Type	Honda TL

Project 2-System Process

Intelligent Parking Charge Display Stand

Infrared ray sensor senses a parking vehicle.

Host Server

After the host server receives the signal of the vehicle information, it will start to accumulate the charge based on the parking time. It will also upload video for monitoring purpose. When the vehicle leaves the intelligent parking charge software system, it will debit the charge automatically.

Registration	
Card No.	000000000001
Name	Lin Gi Dong
Address	Taipei
Deposit Value	1,500
Car Type	Honda TL

The vehicle owners open account and deposit value.

Project 2- Hint Projection

WELCOME

Parking space is available.

OCCUPYING

Parking space is being occupied.

Parking Time: 1:15
Charge: $15

In the process of debit the charge by card.

Project 2-Users Open Account

When there is no eTag on the vehicle, the owners need to open account by using the intelligent parking charge display stand. Filling in the vehicle' s registration information, the owner' s information, debit card, and take a picture of the license plate, then the account will be opened. These information will be storage by the intelligent parking charge software system.

Vehicle without eTag.

Registration

Card No.	000000000001
Name	Lin Gi Dong
Address	Taipei
Deposit Value	1,500
Car Type	Honda TL

Project 2-Reading Vehicle Data

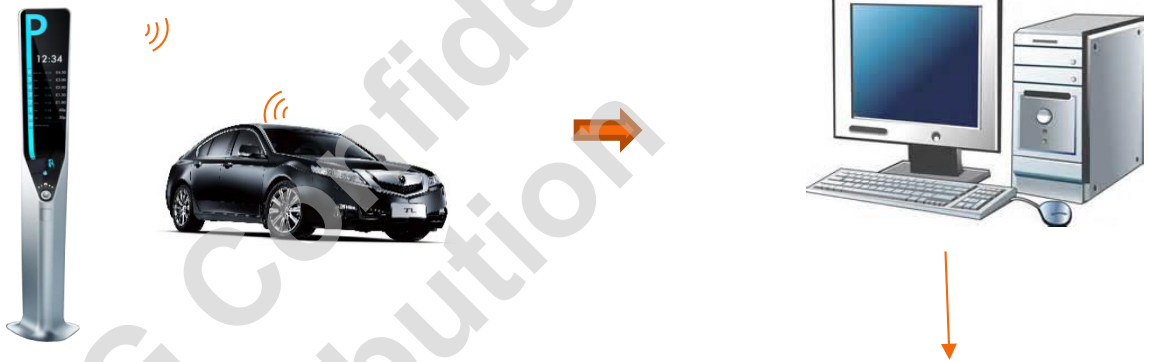
When the vehicle reaches the sensor zone, the infrared ray sensor will sense if there is a vehicle is parking. It will activate camera to identify the license plate. The host server will link to the data of the owner and start to accumulate the parking time and start charging. The intelligent parking charge software system will show the parking time and charge simultaneously.

User Information

Card No.	000000000001
Name	Lin Gi Dong
Address	Taipei
Deposit Value	1,500
Charging Time	00:00:00
Consumed Value	0
Car Type	Honda TL

Project 2- Settle Parking Charge

When the vehicle is about to leave, the infrared ray sensor will sense the vehicle is leaving. The intelligent parking charge display stand will automatically transmit the data of parking time and charge to the host server. The intelligent parking charge software system will debit the charge from the card. The users can examine these information directly.

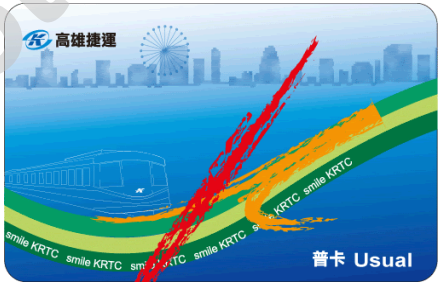


User Information

Card No.	000000000001
Name	Lin Gi Dong
Address	Taipei
Deposit Value	1,450
Charging Time	01:30:00
Consumed Value	50
Car Type	Honda TL

NFC and Transportation Card Debit

- If the users do not apply for auto debiting, they can use NFC or transportation card to debit. Place the card on the card reader panel of the intelligent parking charge system to debit.



Thank you for your attention and support!