UHF RFID
Vehicle Battery Charging and Billing Management

System building Introduction

WENSHING Electronics Co.,LTD.

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 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. It is 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 not directional. Portable data. Great weather resistance. Long life time. Safe. No limitation from the environment. Permanently usable. Especially suitable for automation or severe environment such as oily, high dust situation, etc.

System Introduction

WENSHING Electronics applies the UHF RFID technology into "UHF RFID Vehicle Battery Charging and Billing Management". Using RFID technology to identify the vehicle owner's identity, it can easily handle the bill after the vehicle owner charges the vehicle battery instantly.

This management system includes hardware such as UHF RFID Tag, UHF RFID Industrial Reader, main system computer. Software includes digital billing management system.

There is a huge advantage and prospect in RFID technology. It can accomplish automatically operation, cut down labor cost, fully keep track of the vehicle battery charging process.

System Framework

UHF RFID Industrial Reader

- Connect to the main system computer. Just in time monitoring, identifying, recording and billing.

Main System Computer

- Integrate software such as the vehicle battery charging and billing management system, vehicle owner identify management system, etc.

Industrial Reader

- **WS-UHFRFIDANT4 Industrial Reader:**

  Size：160*160*55mm (W*D*H)

  Frequency：902~928MHz (depends on region)

  Signal Strength：-90dBm
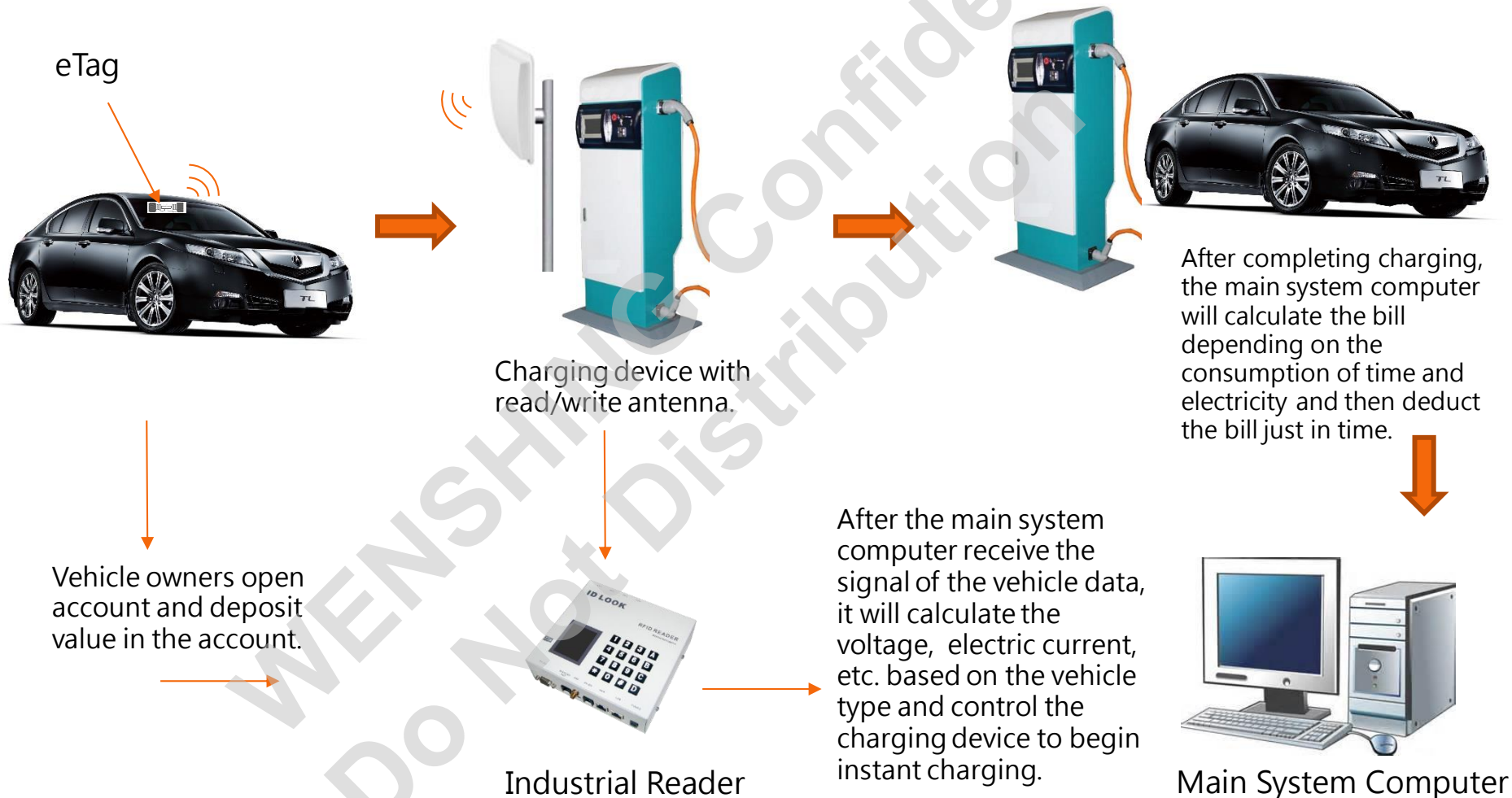
  RF Power：2W (33dBm)

  Reading range：35m (MAX.)

  Interface：Wiegand26/34、RS232、RS485、Wi-Fi 、Ethernet

  Voltage：DC 12V 1A

  Protocol：EPC Class 1 Gen 2 ISO18000-6C IS18000-6A/B

  Wi-Fi：IEEE802.11b/g standard

System Process

eTag

Charging device with read/write antenna.

After completing charging, the main system computer will calculate the bill depending on the consumption of time and electricity and then deduct the bill just in time.

Vehicle owners open account and deposit value in the account.

After the main system computer receive the signal of the vehicle data, it will calculate the voltage, electric current, etc. based on the vehicle type and control the charging device to begin instant charging.

Industrial Reader

Main System Computer

Open an Account

After the consumer purchases the vehicle, the dealer will register an account on the vehicle charging system for the consumer. The consumer will receive a Tag. After the tag is activated and deposited money, just stick the tag at the front windshield of the vehicle.

eTag

Stick the Tag on the vehicle.

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

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Reading Vehicle Signal

When the vehicle is driven to the sensor zone, the charging device will read the Tag automatically to the main system computer. The main system computer will find the user's information. Then it will transmit the vehicle type and the suitable charging data to the charging device. In the meantime, the charging device will be ready to charge and the main system computer will show the charging progress 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

Settle Bill

When the vehicle complete charging, the charging device will send "stop" command to the main system computer. The main system computer will calculate the consumed value based on the consumption of electricity, time, etc. and withdraw the value from the user's account just in time. The user can examine these information instantly.

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

Accessory Picture

8dBi Antenna

9dBi Antenna

2.4G Antenna

12dBi Antenna
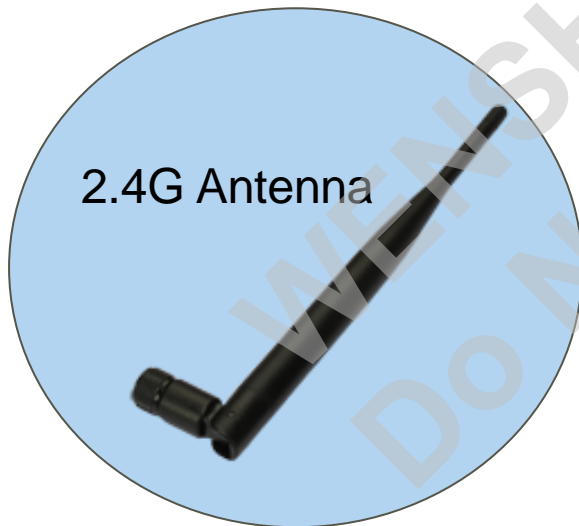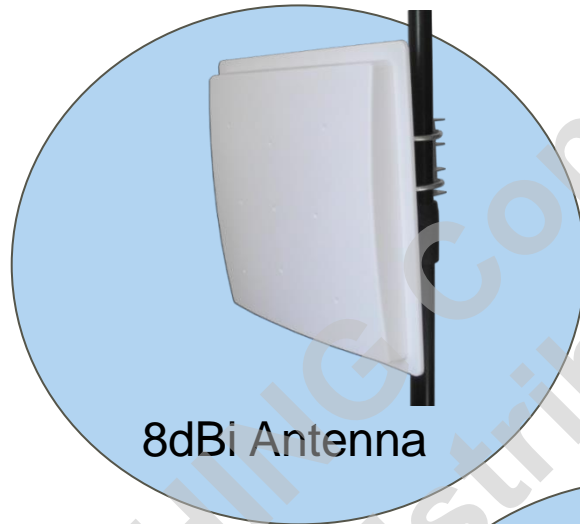
Directional Antenna 8dBi

Technical Specifications	
Frequency（MHz）	902~928
Bandwidth（MHz）	26
VSWR	≤1.25
Gain（dBi）	8
Antenna Size（mm）	225*225*30
Polarization Type	Circular Polarization
Max Input Power（W）	100
Input Impedance（Ω）	50
Horizontal Beam Width（°）	60
Vertical Beam Width（°）	60
Front-to-Rear Ratio（dB）	25
Beam Width E-Plane	68
Beam Width H-Plane	68
Connector	SMA
Radome Material	ABS

Directional Antenna 9dBi

Technical Specifications	
Frequency（MHz）	902~928
Bandwidth（MHz）	26
VSWR	≤1.25
Gain（dBi）	9
Antenna Size（mm）	280*280*40
Polarization Type	Circular Polarization
Max Input Power（W）	100
Input Impedance（Ω）	50
Horizontal Beam Width（°）	60
Vertical Beam Width（°）	60
Front-to-Rear Ratio（dB）	20
Connector	SMA
Radome Material	ABS

Directional Antenna 12dBi

Technical Specifications	
Frequency（MHz）	925
Bandwidth（MHz）	26
VSWR	≤1.25
Gain（dBi）	12
Antenna Size（mm）	445*445*40
Polarization Type	Circular Polarization
Max Input Power（W）	100
Input Impedance（Ω）	50
Horizontal Beam Width（°）	40
Vertical Beam Width（°）	38
Front-to-Rear Ratio（dB）	25
Beam Width E-Plane	38
Beam Width H-Plane	40
Connector	SMA
Radome Material	ABS

Thank you for your attention and support!