



Intelligent Lamp Post Sign

Solution

Version : V.1.0

Statement

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Update

No	Version	Update	Revise
1	Ver.1.0	Initial Publish	2018.05.01
2	Ver.1.1	Update some images	2019.03.14
3	Ver.1.2	Update Y60 parameter	2020.05.15
4	Ver.1.3	Update content	2021.06.28

Documets are subject to change without prior notice.

Shanghai Xixun Electronics Co., Ltd

Catalogue

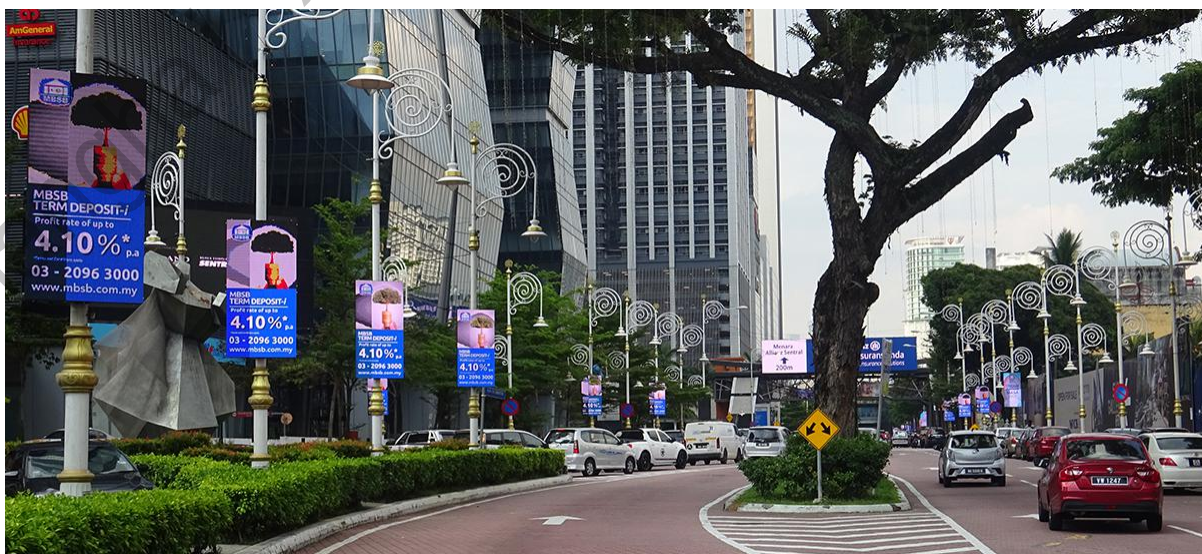
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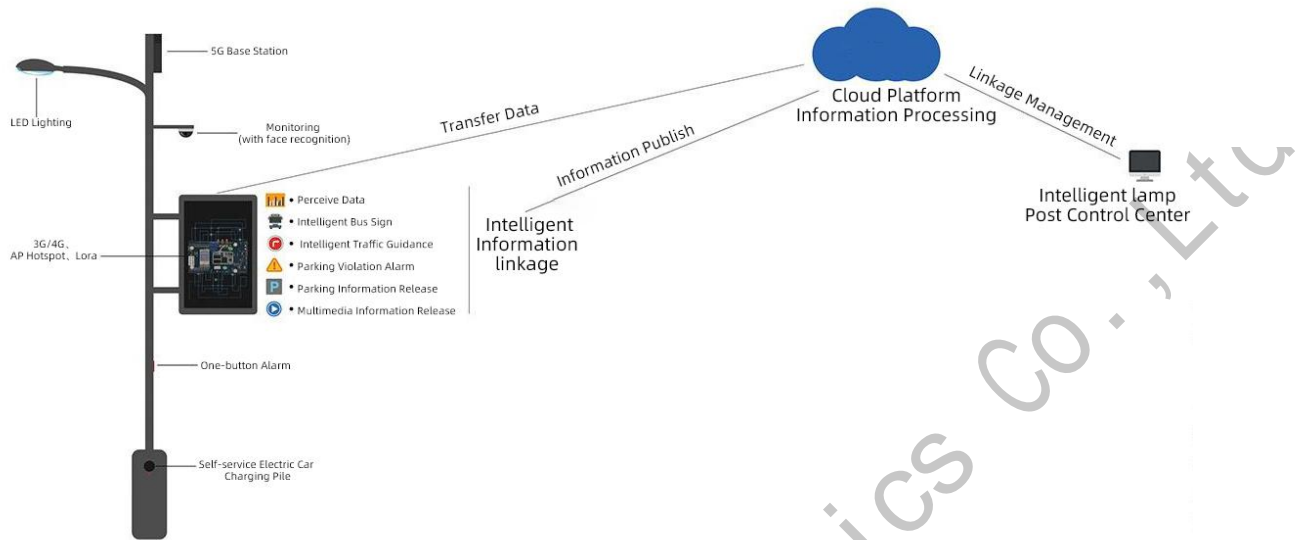
—、 Overview

1. Introduce

LED lamp post sign due to its multi-point placement and synchronous display features, welcomed by many media companies and government agencies. Mainly be installed on the sides of city road or street, will always attract audience no matter how far the car goes. Not only works for road guidance, traffic report, information publish, advertising promotion and other aspects have unique advantages, but also will make the roads scene more colorful. Besides, the country is planning to build more 5G base stations to make sure stable and high quality transmission of 5G high speed signal, this type of led lamp post signs installed per 30 meters will exactly meet the requests of infrastructural construction while no need to break the current city design, which will greatly reduce construction cost and improve urban operation and maintenance efficiency. if installed camera, power-charge point, one key alarm device, environment sensors , plus led ads and remote broadcast, those will together create an unify system for smart city.



2. System Architecture



Focus on "intelligent lamp post disparate systems" to help "the intelligent lamp post popularization", respond to the "multi-post combine in one" policy.

1. Multi-post sign LORA wireless synchronization scenes (patent);
2. AIPS Cloud platform to realize remote control in any where;
3. professional forecast data and environment data display in real time;
4. Open the SDK (API, HTML5) to joint with smart city platform;
5. Big data docking (operator, city big data).
6. expanded master speaker and horn to make the LED sign works as IP sound post
7. collect and calculate audiences per daily and for a certain time.

3. Solution Features



Synchronization Initially use Lora sync ✓



Live stream Display camera image in live streaming ✓



Stable Qualcomm solution Specialized for outdoor ✓



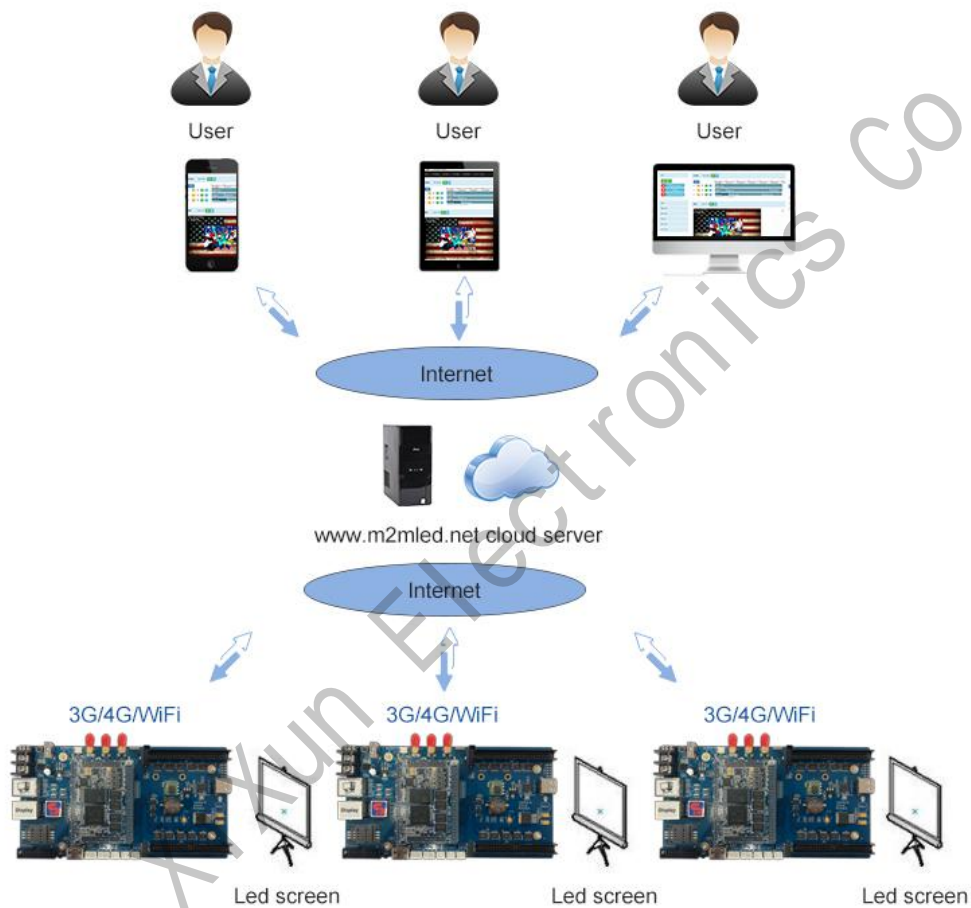
Brightness Auto brightness no effect transportation ✓



Security Cluster management by cloud platform and remotely monitor in real time ✓

二、 Solution Details

1. System Diagram

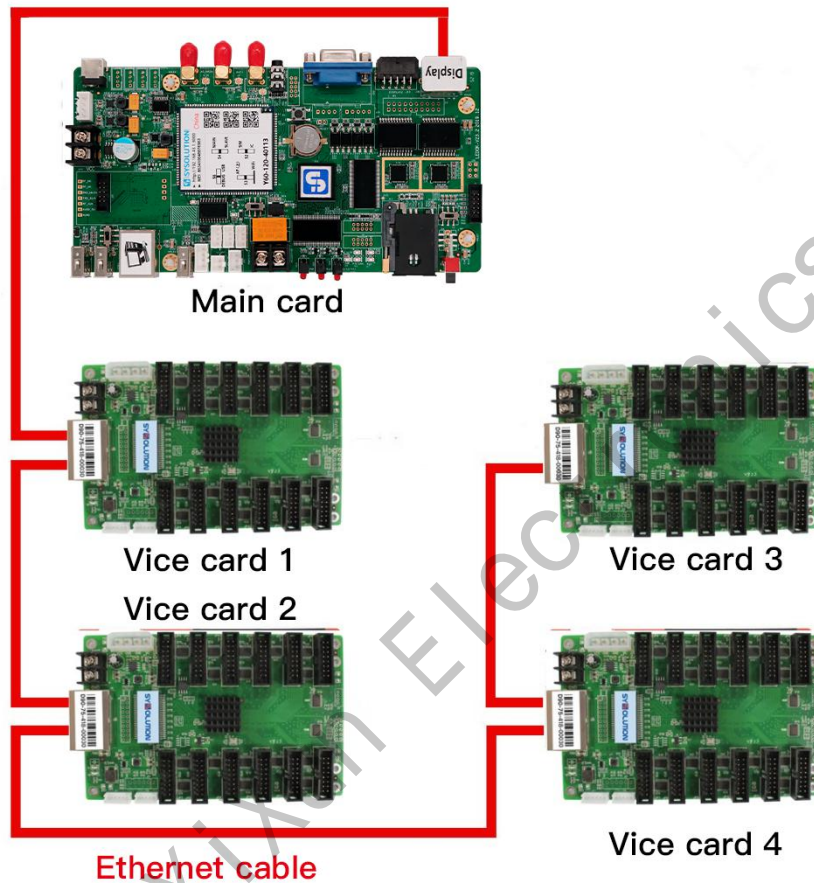


2. Hardware composition



Hardware	Quantity
Outdoor android controller Y60(standard version with 4G, Ethernet ports, power rely, sync Lora)	1
Receiver D90-75 (according to real led sign resolution)	2

Brightness sensor RL2	1
Optional device: R67 7 in 1 environment sensor (temperature, humidity, PM2.5, P10, noise, wind speed, wind direction)	Optional

Y60 and D90-75 connection:







3. Accessory sensor types and functions

Type	seven in one sensor	Brightness sensor
Image		

<p>Function Description</p>	<p>High-end class multiple function board with temperature, brightness, PM2.5, noise, wind speed, wind direction functions, connect to Y60 via RS485, can be installed per 2 km as main sending station, can also use another separate Y60 (does not connect to led sign via flat cable) only for sending environment sensor data and sync commands, which means install 2 sets of Y60 in the middle of the street, the second Y60 connects to R67 via RS485.</p>	<p>Auto adjust brightness according to environment brightness</p>
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Choose different types for different setup:

Type	Functions	Normal configuration	Terminal configuration	High-level configuration
 <p>Y60</p>	<p>Android controller, designed for led lamp post sign, with Ethernet, wifi and 4G modem</p>		<p>√</p>	

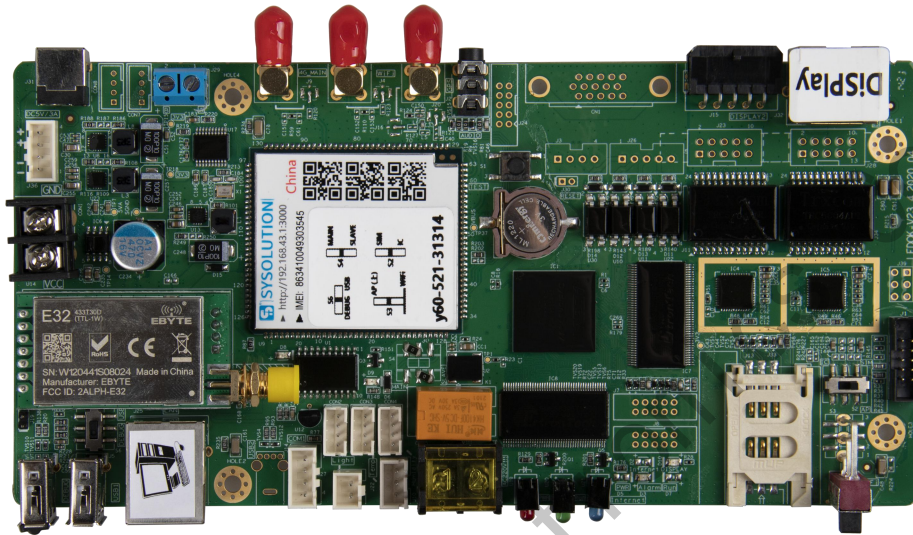
 D90-75	New generation receiver	√		
 RL2	Brightness sensor	--	√	√
 R67	Seven in one sensor: temperature, humidity, noise, PM2.5, PM10, wind speed, wind direction, install per 2 km.	--	--	√

4. Functions to be realized

Principle: insert one 4G SIM into each Y60 controller or let Y60 accessing to internet via wire so that to joint to xixun cloud platform, then transfer the data to each led sign as a result. When citizens walking around will get the information like advertisements, public-interest ads or notifications published on the led sign. Xixun company also packaged a set of SDK (HTTP protocol based on web platform) for users to do customized development. Users can build the SDK in Local network area or in cloud server side, supporting windows and linux both.

三、 Android Control System

1. Image



2. Advantages of Y60

1. Standard version integrates WIFI, Ethernet, USB and Qualcomm 4G;
2. Integrates multiple function board;
3. Support non-linear editing program structure arrangement;
4. Video hardware decoding;
5. Maximum total pixels 600,000 with widest 720 or highest 1280;
6. Audio output connects to master speaker or horn to realize IP sound post function;
7. Fast 4G communication speed, WCDMA :HSDPA Max14.4Mbps(DL)/Max 5.76Mbps(UL);
UMTS Max 384Kbps;
8. Support breakpoint resume, program saved on board adopts data warehouse management, extremely save data flow;

9. Support cascading with receiver cards with best refresh rate, adjustable brightness and good effect.
10. Easy to install and setup, high performance with reasonable price and powerful functions;
11. Handles Additional parameters : main sending card needs to pass FCC and CE authorize, provide original and copy of CAQ certificate. One Gigabit Ethernet port, one molex gigabit port, one VGA for serial port, 4pin power serial port, integrates Lora modem, remote power rely without multi-function board(physically power off), two USB ports, one 100MB Ethernet port, one AP/WIFI switch, can connect SPI serial port, IIC serial port, RS485/232serial port also. Support to connecting Lora sync modem to realize display same frame and to connecting environment sensor to display 7 kinds of sensor data without customized development.

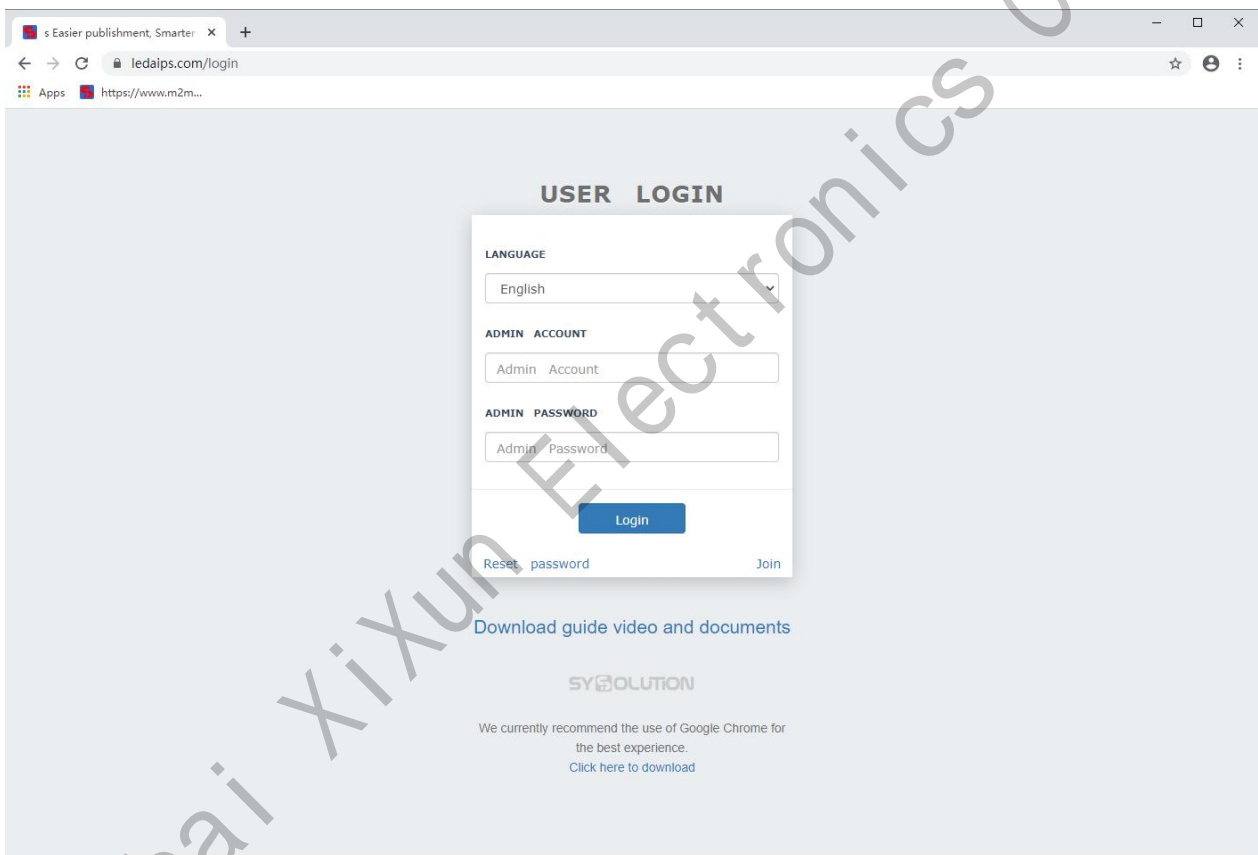
(reminds: please refer to "Y60 user manual" for more details)

四、AIPS Cloud Platform

1. AIPS Platform

1.1. WEB platform easy to use

Adopts B/S structure, users can operate this platform without professional skills just need register and login and then can control their terminals.



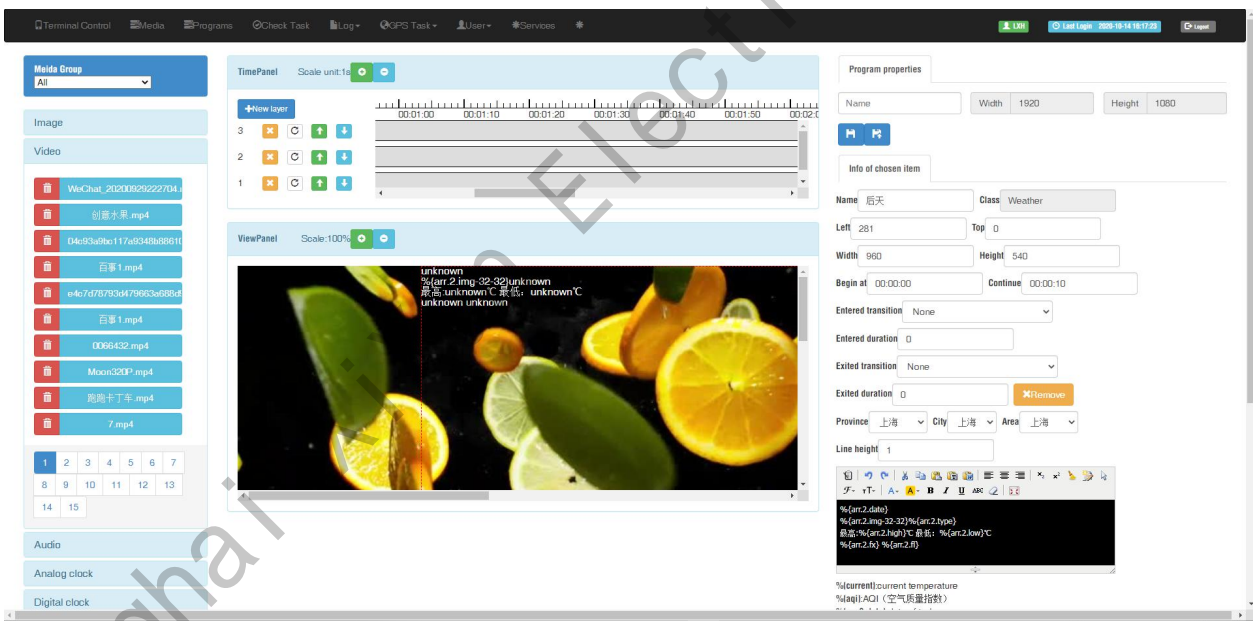
1.2. Operations without any limit

No need install software, can operate in any device as long as have internet like laptop, smart phone, ipad and etc.



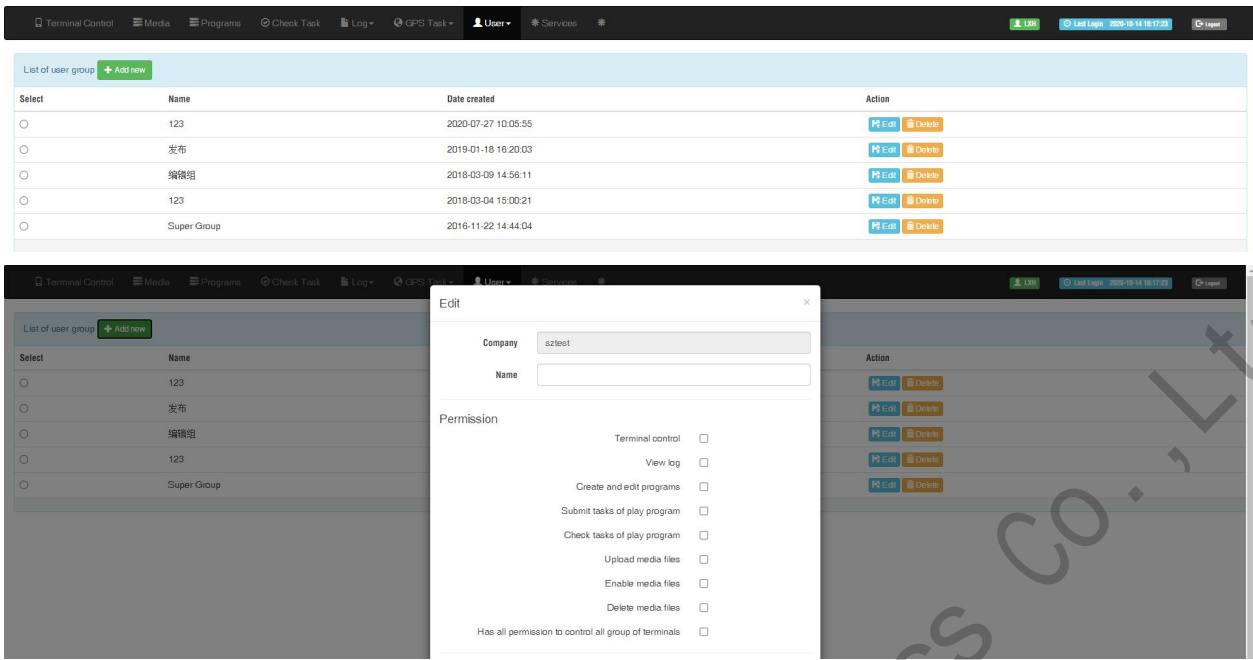
1.3. Easy to make new program, non-linear editing, special for led ads business

AIPS platform support web editing program online and support Chinese weather forecast .



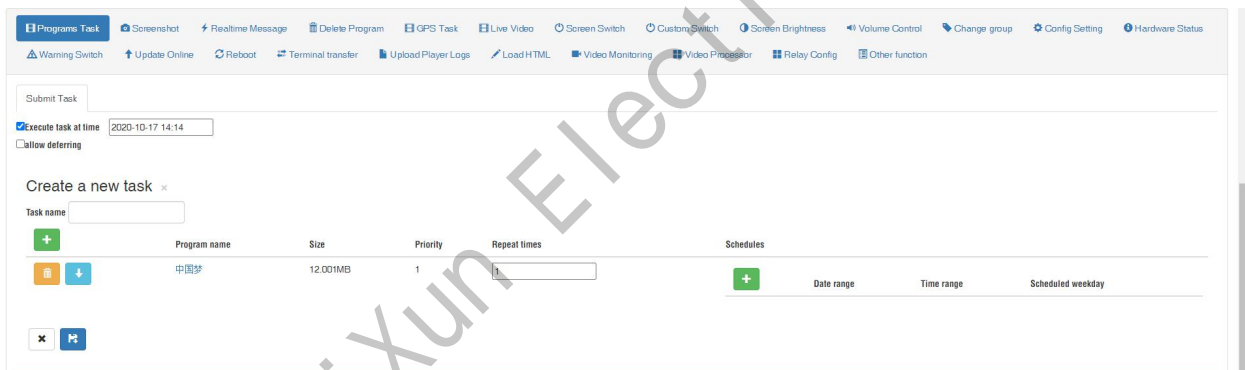
1.4. Permission management to meet various requests

Editing, publishing and permit to publishing.

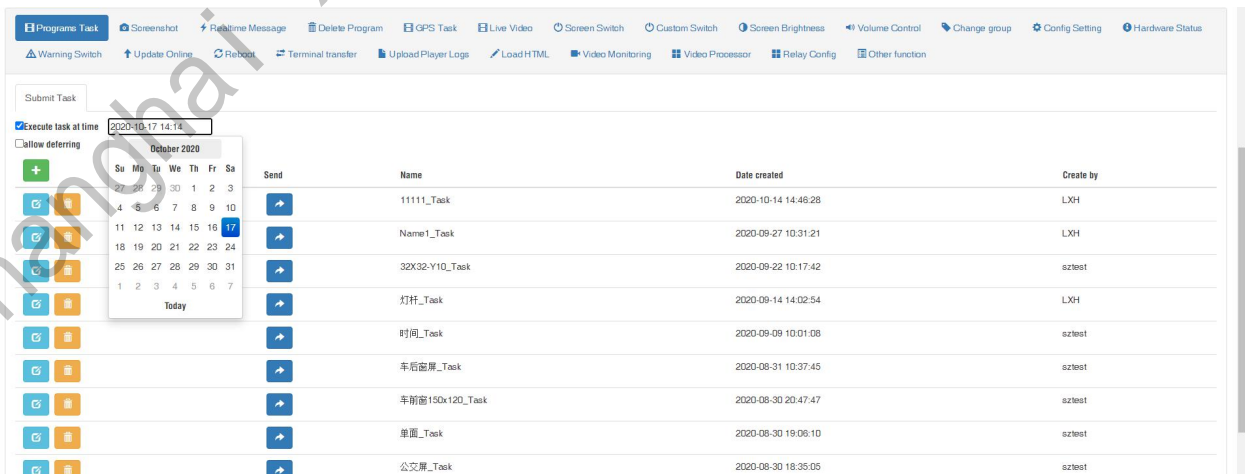


1.5. Support program schedule and update

When add new program task, can add schedule for each program.

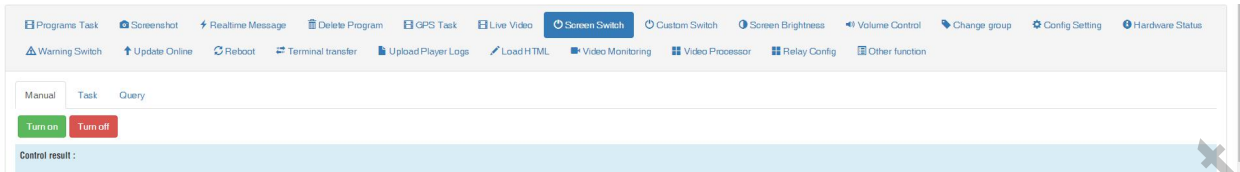


Regular release tasks, reasonable arrangement of customer advertising release time.



1.6. All kinds of screen control, brightness control, quick response

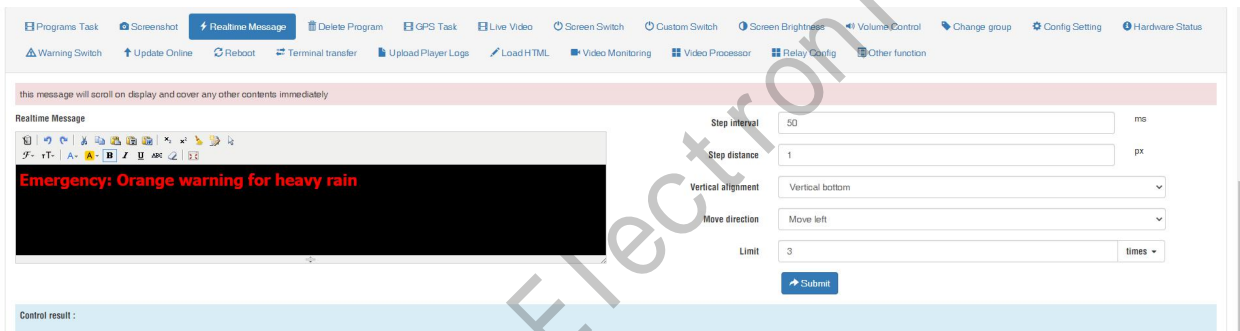
The screen can be switched on and off remotely to adjust brightness, volume, etc. The screenshot is as follows



1.7. Support breakpoint resume, extremely save data flow

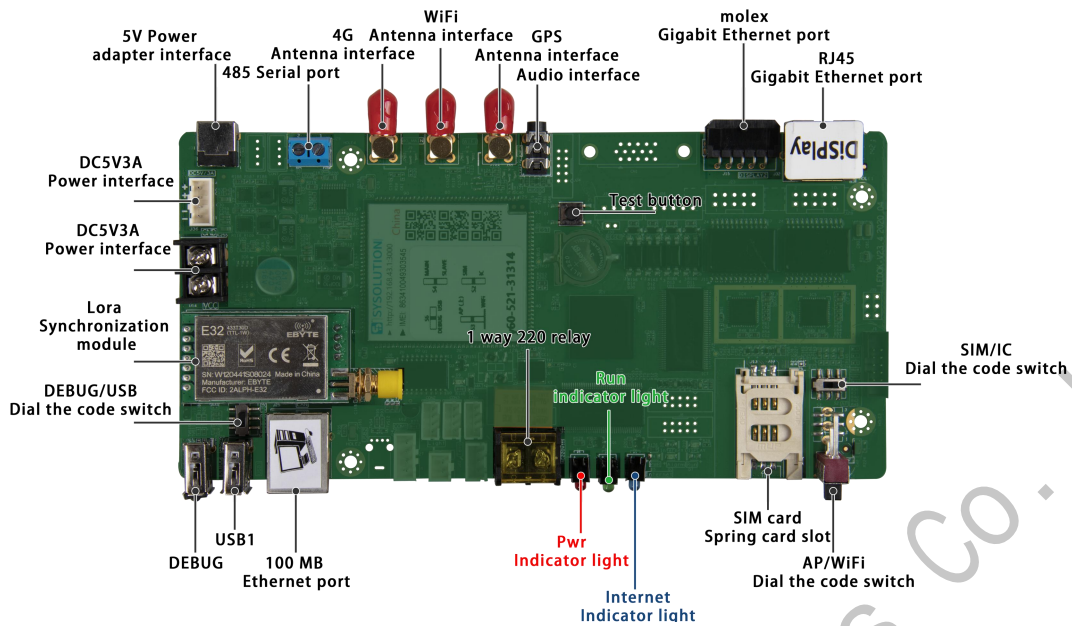
Control card internal media database management, upload, download process support break point continued transmission

1.8. Interrupt live messages



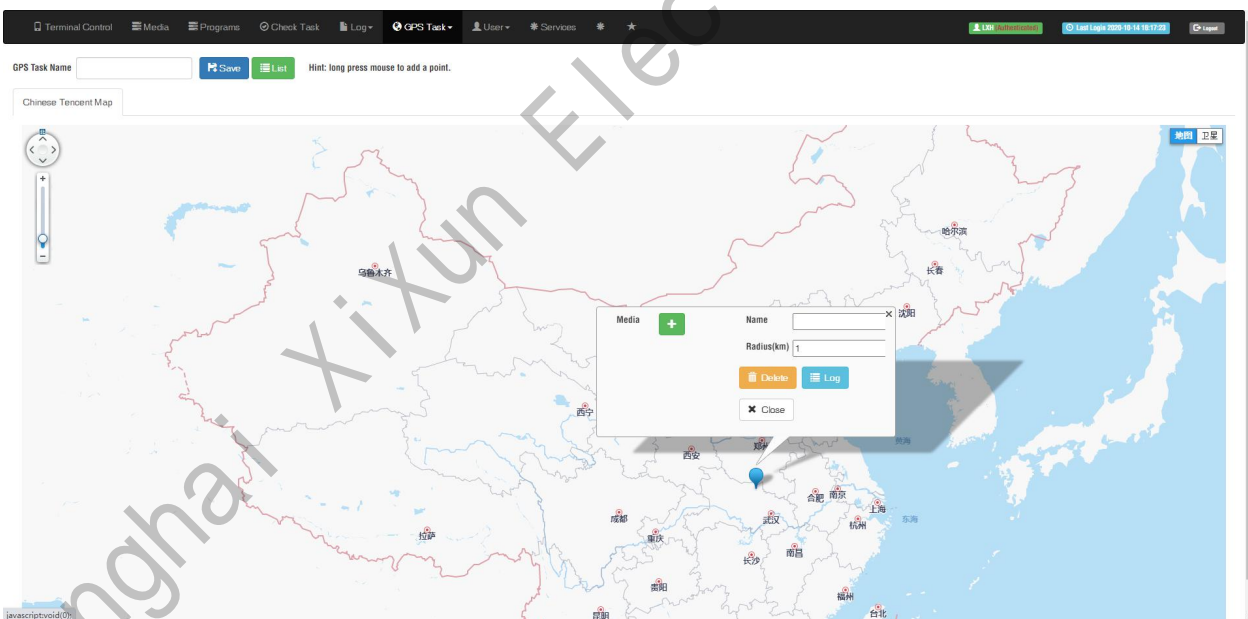
1.9. Simple equipment, integrated 3G/4G, without external 4G router, stable and reliable

Y series card can use a variety of communication methods to access the internet, the controller itself with wireless 3G/4G, WIFI, wired network interface, no need to be equipped with other 3G/4G wireless router and other communication equipment.



1.10. Support gps location ads

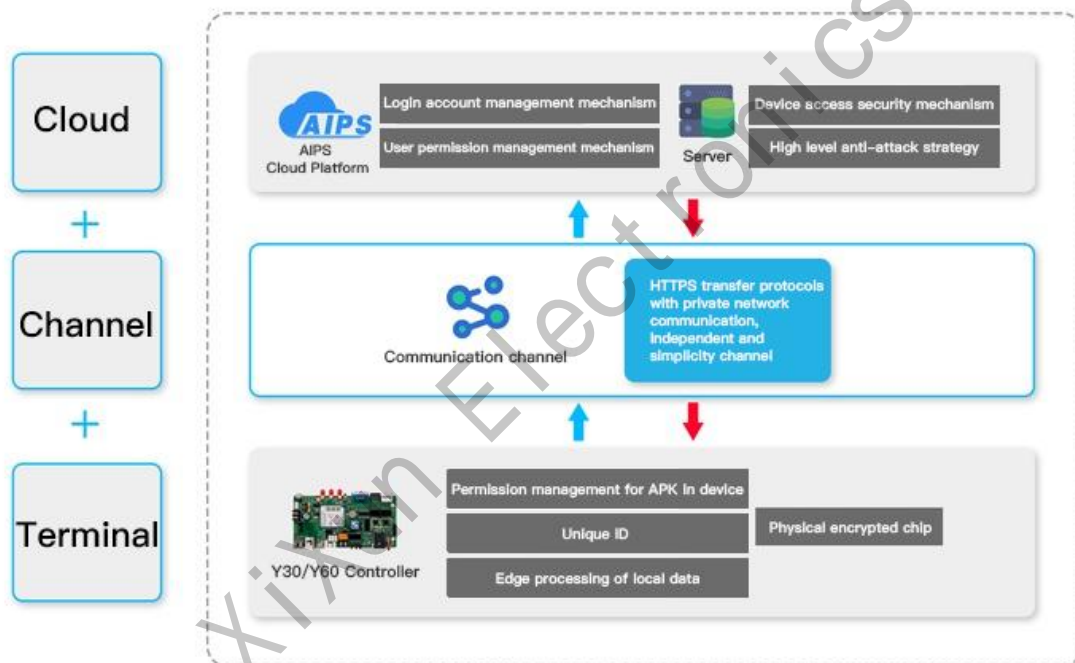
After installing GPS antenna, can check screen location on map, also setup gps location ads for each screen, also get the player log.



2. Traits Of Cloud Server

As the carrier of intelligent city big data, intelligent led lamp post sign will display or broadcast the data or information to citizens to realize information interaction and also ensure high level security for all information.

As a part of intelligent city system, led lamp post will also be jointed in the big platform for unify management, which should be up to the security standard of the whole chain of "Cloud-Channel-Device" . With years of experience of design intelligent led lamp post system and its application, Xixun company successfully concludes a very effective security mechanism, which will provide great support for led lamp post projects maintenance and long term working.



Cloud Terminal (AIPS cloud platform + cloud terminal sever)

2.1. login account management mechanism

- 1) Mandatory high strengthen password: Users are required to setup long password including digit, characters and special marks during registering to avoid simple password risk.

- 2) Mailbox authentication mechanism: Users can enable mailbox authentication, so need to provide the correct verify code to continuing login success.
- 3) IP blacklist mechanism: If enter wrong password or verify code too many times then the platform will auto add the requested IP into blacklist to stop keeping login operations.
- 4) Session protection mechanism: To ensure and protect the login account that already login by setting the period of session validity. It will auto exit when operators left for a while.

2.2. Users permission management system

- 1) Operation permissions: divide all of operations into several parts: terminal management permission, upload media file permission, program editing permission and publish permission and etc, those permissions can be set separately or combined.
- 2) User group: can assign sub- user account to different user groups, and select various operation permissions for each user group.
- 3) Device Group : The cloud platform supports any grouping of the associated devices under the account, and different device groups can correspond to different user groups.
- 4) Operation logging: the cloud platform will keep operational records such as log-in and logout, media uploading, program release, terminal modification and so on to the cloud platform, which is convenient for viewing and reviewing with the real estate at any time. The log content can not be added, modified or deleted.

2.3. Server

- 1) The asymmetric public key is used to verify the digital certificate of access terminal equipment, to avoid illegal terminal accessing or camouflage; the server has high level anti attack strategy which will ensure the security of operation system.

2.4. Data link

- 1) HTTPS encrypted transmission protocols: to authenticate users and server in mutual way by adopting HTTPS protocols, say bye bye to streaking state of interactive information, make sure sending complete data under encryption status.
- 2) Require to build independent communication channel for private network data.
- 3) Keep simplicity communication data link in advantage of complete functions so that can reduce uncertainty for transmission.

2.5. Third party APK permission management

- 1) Equipment no icon operation interface under non physical contact, not support silent installation for third party APK so that can prevent accessing permission and visit remotely and definitely can not install any third party APK illegally.
- 2) Authorized access mechanism, that means even installed the illegal APK by Violent physical invasion, the player can not access to AIPS cloud platform and accept its control.
- 3) Each device has a different unique digital certificate. Opensll private key and RSA algorithm are used to generate secret key files for device unique ID and other information.

- 4) Local data marginalization processing. Peripheral traffic warning, including environmental detector, manhole cover sensor, river water level detector and other reading channel data can be marginalized nearby and displayed on the screen, which will improve information processing efficiency and ensure information security.
- 5) Physical encryption chip: add Professional encryption chip to the control card, that means enhance security protection at the physical level, which greatly improves the security level of the control card.

2.6. Security mechanisms for development and joint

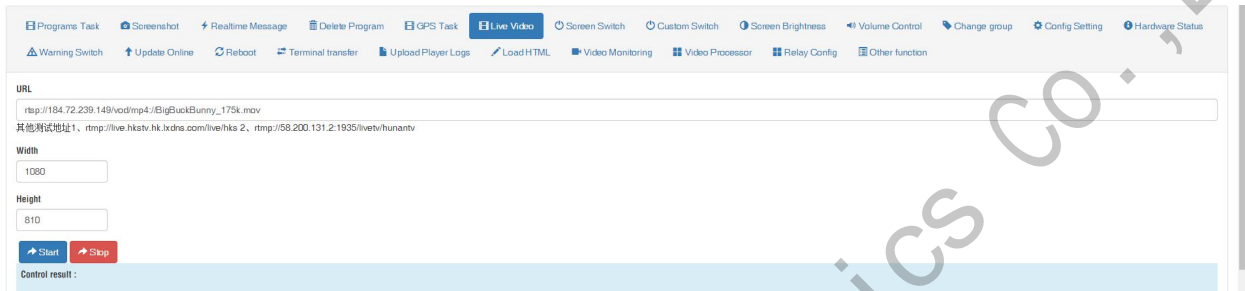
In most cases, the smart light pole screen needs to be connected to the smart city platform, so the development of the security mechanism in the connection is also crucial. Xixun technology provides three sets of standard development programs with different difficulty degrees for customers according to various development requests, also provides the corresponding security mechanism. In view of security and confidentiality, the development of the docking security mechanism is not open. Only in the process of the specific project docking communication. Please understand.

Through the above "cloud-channel-terminal" trinity security mechanism, which will extremely guarantee the information security of the intelligent lamp pole screen. Generally speaking, the "cloud" and "terminal" would share a same set of solutions with the wisdom city cloud platform which will ensure its own safety. Under this premise, choosing appropriate control equipment and ensuring security become the most important task in the chain, especially in the case of an intrusive contact. An effective defense mechanism for big data safety management would be the long lasting topic and searching direction. Xixun company

will continue to study and update the system security mechanism for lamp post screen control solutions!

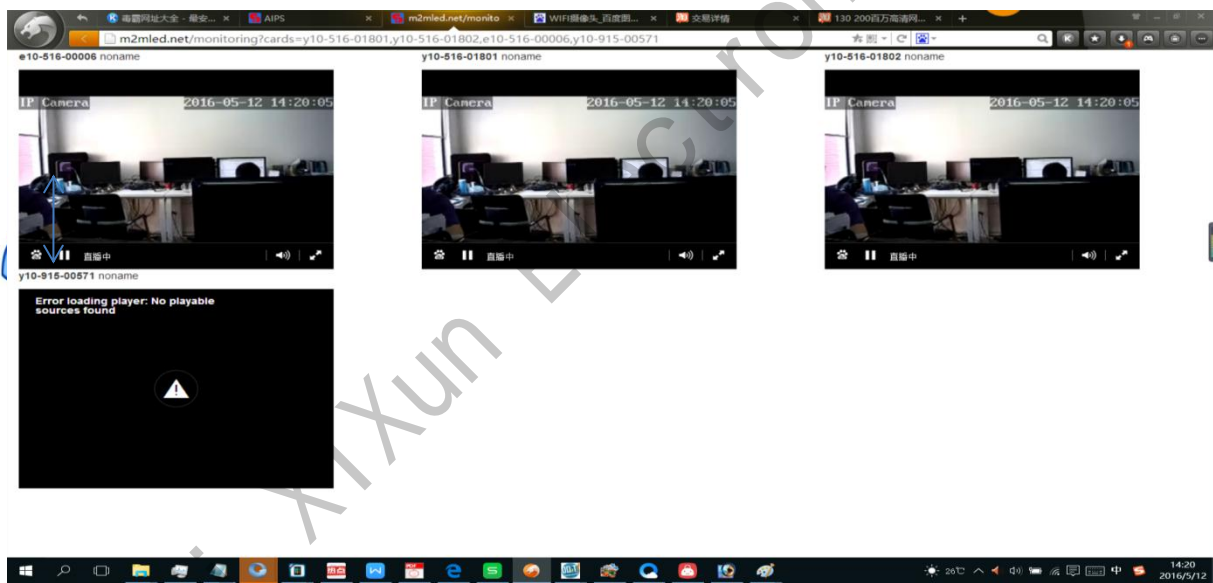
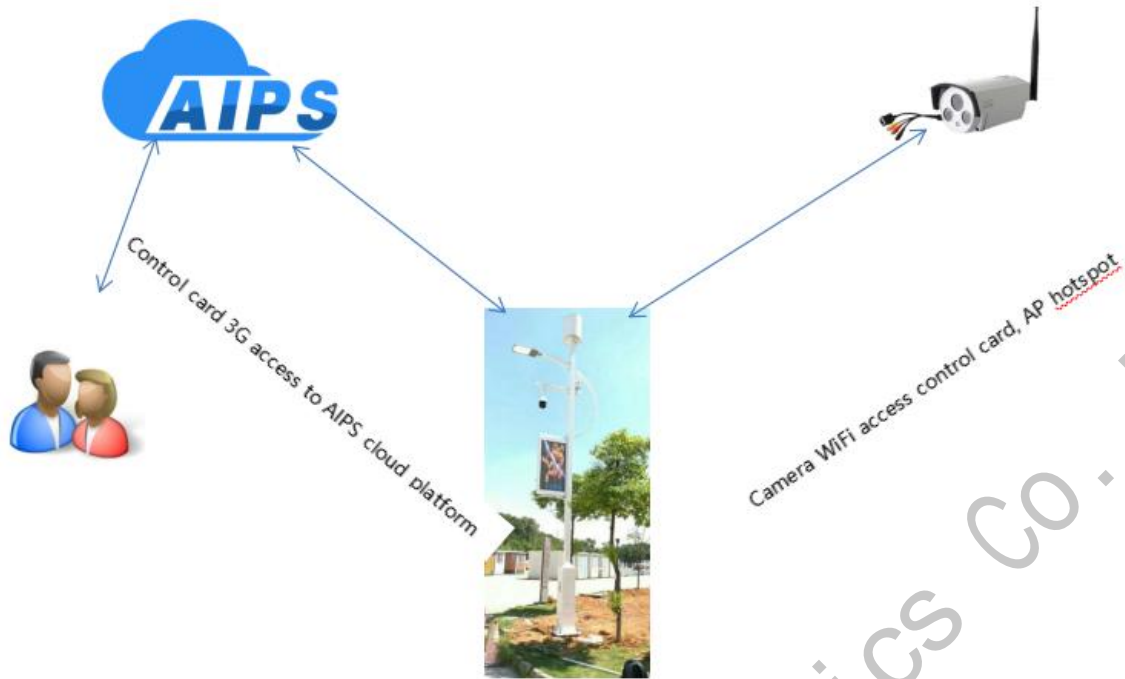
2.7. Live video streaming display for TV channel and camera image

After login, select the terminal ID and write down the live video streaming of TV channel, set screen size and click start button.



2.8. Remote and wireless camera monitor

- 1) Users can choose to use any type of webcam with RTMP push streaming function;
- 2) Users can choose webcast streaming media services provided by baidu cloud, ali cloud, Letv cloud and hikvision, or build their own streaming media server.
- 3) Only one step configuration in the AIPS cloud publishing platform to realize remotely monitor the display screen or the surrounding environment.

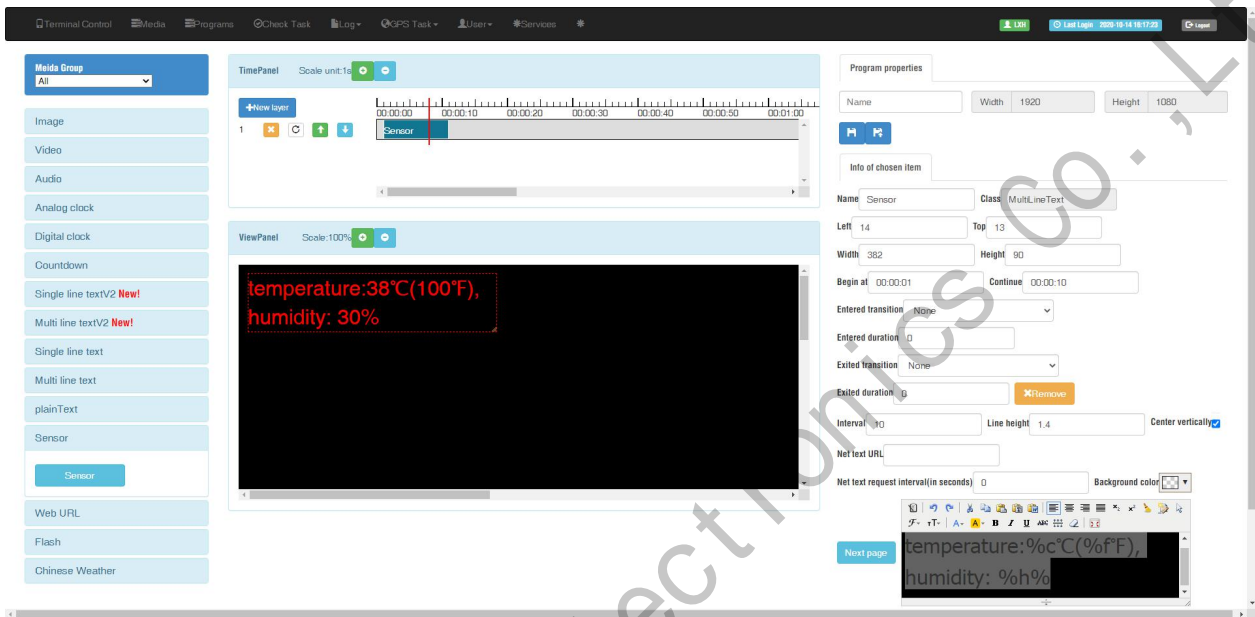


2.9. Server configuration for reference

- 1) BHardware configuration: CPU 2 core, memory 4GB
- 2) Operation system: Windows Server 2012 R2 standard version 64 bit
- 3) Store Space: 500GB
- 4) Network bandwidth: 10Mbps

2.10. Integrate the Internet of Things to build an unified platform for smart city system management.

PM2.5 and other sensor data can be display in real time and customize editing the font, color and position online, can remotely manage power switch with the multi-function board.



The control card connects with the environmental detector, charging pile, emergency call equipment, lighting control equipment, all integrate into the same management platform and Warm tips: For more information about AIPS multimedia information release system, please refer to Shanghai Xixun AIPS User Manual)

五、Parameter Of Lamp Post Sign

Product model	Outdoor lamp post sign
Pix pitch	4mm
Pix composition	1R1G1B SMD2727
Pix density	62500dot/m ²
Module size	2560x1280mm
Module resolution	64x32dot
Display area	768x1536x160mm
Cabinet resolution	192x384dot
Weight	45kg
Water proof grade	IP65
Scan way	8S
Brightness level	6000CD/m ²
Visual angel	120°
View distance	> 6m
Gray level	14bit
Color type	16.7M
Average power	300W/m ²
Refresh rate	≥3840HZ
Operating	Outside

environment	
Brightness adjust	Adjust in 0-64
Control way	Asynchronous control, support WEB or customized development of android apk
Input power	AC110 / AC220 50/60HZ
Work temperature	- 30°C~+85°C
Work humidity	10~90% RH
Work life	100,000hours
Back Set	Acrylic board can be placed inside the spray painting advertisement.
Screen quote (no tax)	Screen manufacturers design their own parameters, the above parameters from the network, for reference only
Cabinet quote (no tax)	
System quote (no tax)	
On site -manual travel expenses	Calculate extra

六、 Light pole screen case

Guangzhou Municipal Government Compound P2.94



P10 outdoor screen in Kuala Lumpur Commercial Centre, Malaysia



Dongguan HUO lianshu Community P5 outdoor screen

In addition, domestic Guizhou, Guangxi, Yunnan, Taiyuan and other cities have installed community lamp pole screen, are using out company' s wireless 3G release system.



Shanghai and many cities in the YANGTZE River Delta have installed lamp poles in commercial centers.









End page

More about LED advertising equipment control of the Internet cluster control solutions, and related instruction documents, please visit our website www.ledok.cn to detailed information, if necessary, online customer service will make the communication with you, more than 10 years of industry experience will give you a satisfactory answer, Shanghai Xixun- sincerely look forward to the follow-up of cooperation with you.

Best Regards

Shanghai XiXun Electronics Co.,Ltd.

2021-06

让显示屏智慧起来!
We make LED smart