Chapter 20 Wireless GPRS Solution for LED Display Screen

Introduction

LED display screen has been widely applied in various fields, such as advertisement, traffic, etc. However, users have to do a lot of work to update display contents due to numerous screens and widely distribution. In order to solve this problem, our company has successfully researched and developed LED sign control system based on GPRS. As long as users can access to internet and find the control card that connects with GPRS, they can control display contents and achieve off-site control. In this way, users can solve problems of transmitting over long distance and of one PC controls multiple LED display screens.

Traits

1. Making high efficiency and reliable Transmission Control Protocol (TCP) based on features of GPRS communication so as to adjust packets transfer rates (Mbps) automatically and use GPRS bandwidth effectively, average rates could reach to 15kbps.
2. Supporting Transmission Data Retrieval and Document Resuming. It just transmits the amendment part every time so as to reduce GPRS traffic and save costs for customers.
3. GPRS not only can transmit simple message but also pictures and videos.
4. LED editor Software will process videos and pictures according to screen size then through harmless compression and storage, making a storage cell can perform information as much as possible.

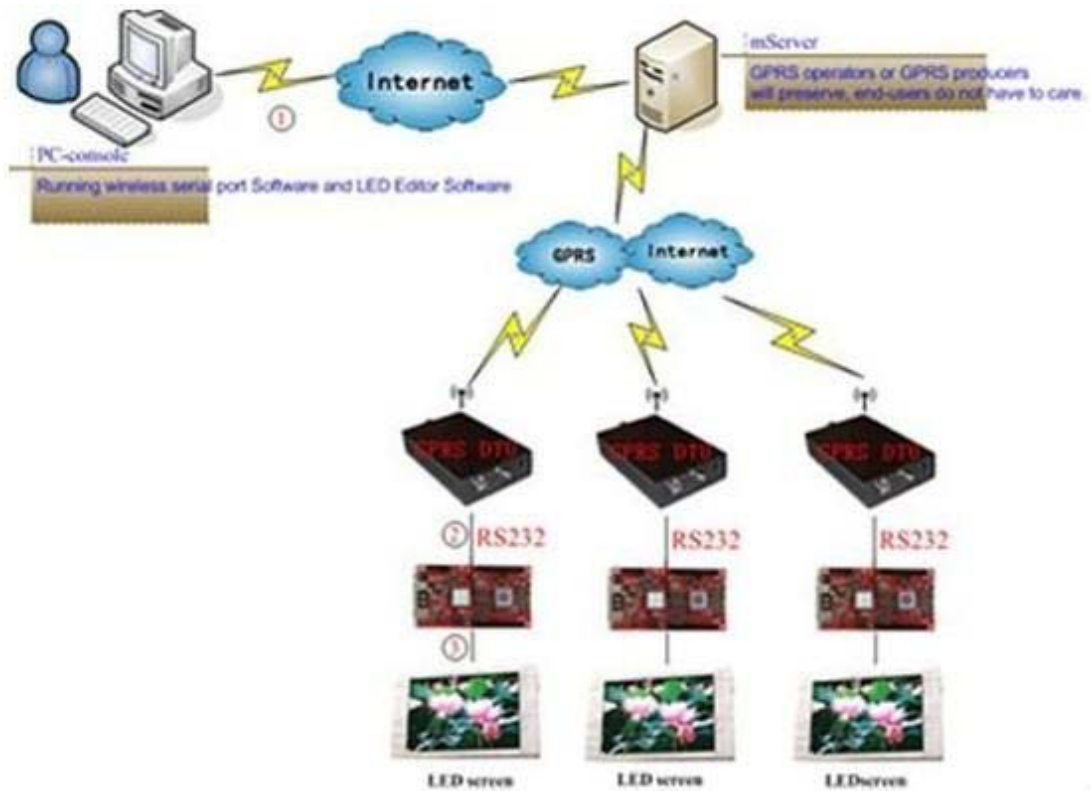System structure as shown in image 20-1 in below:

Figure 20-1

A. Connect PC with ADSL router by LAN line, inserting ADSL router into Internet by telephone line or in other ways.
B. Connect control card with GPRS modules by serial port 232.
C. Connect control card with display screen by normal adapter plate and flat cables.

1.1 Components of main hardware and software

Hardware:
ADSL router (recommended types: TP-LINK, TD-W89541G)
LED sign controller (M-series control cards)
General HUB (HUB: used for connecting display screen with control card)
LED sign
PC that can control LED screen (need to install LED Editor Software)

Software:
Name: LED Editor
Wireless M-GPRS.exe software
Screenshot of LED Editor Software interface as shown in image 20-2 in below:

Figure 20-2

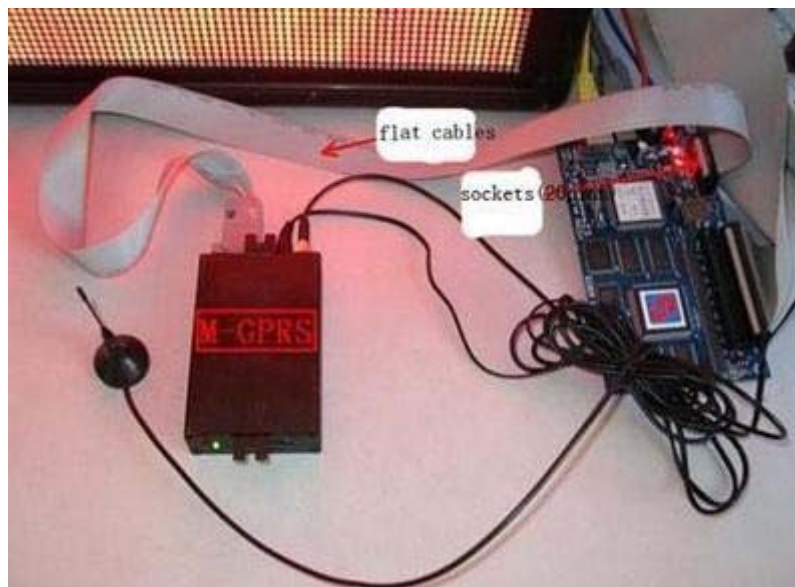1.2. Connecting diagram of Hardware, as shown in image 20-3 in below:

Figure 20-3

1.3 Setup Software

Under multi-mode, there are two communication types for GPRS: IMEI configuration (recommended); GPRS virtual serial port configuration

Steps for setting up LED editor:

Menu bar-→Options-→Software setup→Communication parameters, please select multi-mode then input password (default: 888), as shown in image 20-4 in below:

Image 20-4

Then select IMEI configuration under GPRS mode, as shown in image 20-5 in below:
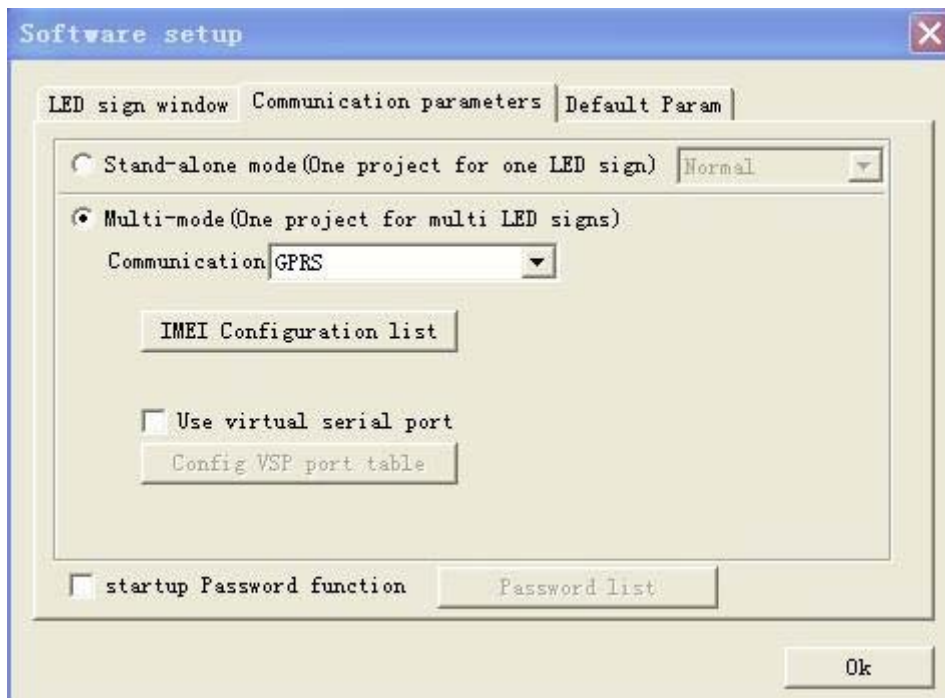

Image 20-5

Click on "IMEI configuration list" then a dialogue box will appear, as shown in image 20-6 in below:

Image 20-6

Click on "Add" button and add new terminal users, as shown in image 20-7 in below:

Image20-7

NOTE: press F5 on this interface then detailed information about GPRS terminal will appear, moreover, there is another GPRS mode: H7210 in dropdown list of DTU type for users, as shown in image 20-8 and 20-9 in below:

Interface of M-GPRS (do not change other contents)

Image 20-8

Interface of H7210

Image 20-9

Click on "OK" button after configuring. Then click "Send" button, as shown in image 20-10 in below:
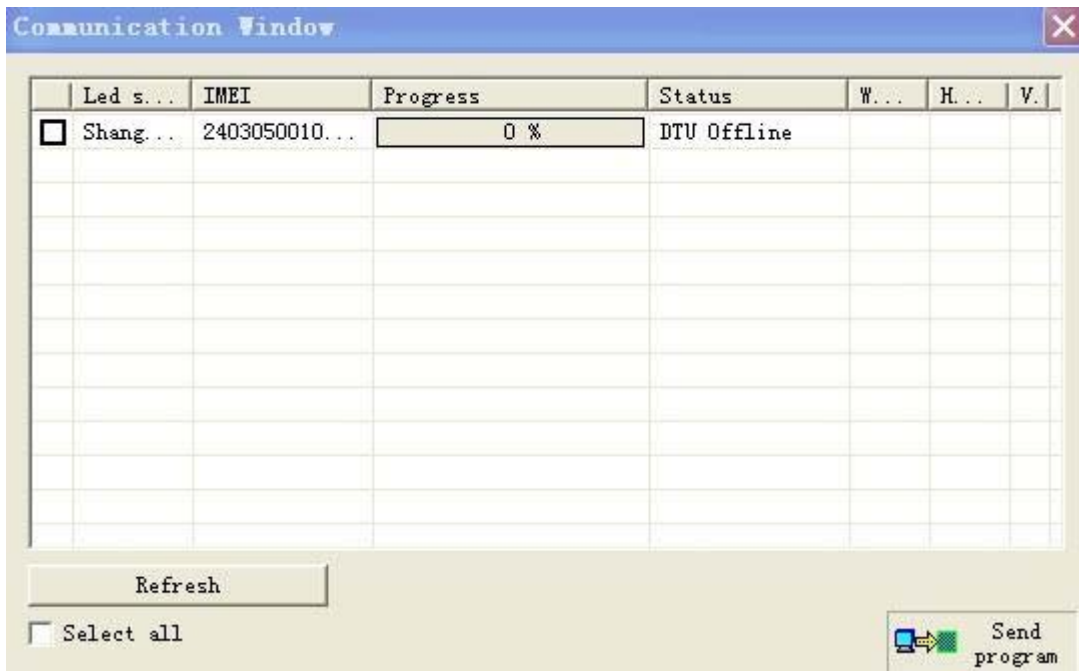
Image20-10

NOTE: Methods of changing M-GPRS DTU configuration

Configuration preparation and connection:

Insert web-enabled GPRS data card into SIM connector then connect M-GPRS configuration serial port with PC port by serial port line

Connect M-GPRS antenna.

Login configuration interface:

Step 1: Running M-GPRS-DTU-CF.exe software, click on "options" button then select the serial port that PC can connect with M-GPRS in the box of "COM Option", click OK. Click on "start configuration". (Turn on M-GPRS power within 15 seconds after clicking on "start configuration".)As shown in image 20-11 in below:
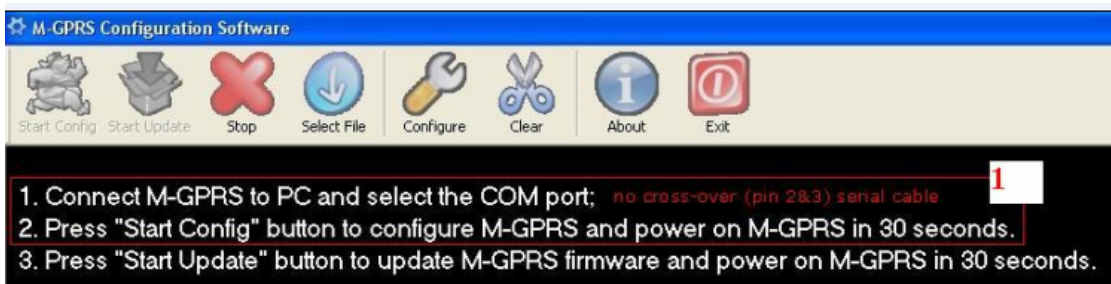

Figure 20-11

Step 2: Turn on M-GPRS power (power port is inner positive and exterior negative).

Step 3: When version information appears in configuration box, please

press "enter" into configuration interface. in foreign country, please change parameters, as shown in image 20-12 in below:

Image 20-12

1.4 Configuring baud rate of control card serial port

Connect control card with LED editor Software through Network or COM under stand-alone mode, then running LED Editor, Menu bar-→Options-→Hardware Setup

Baud rates of COM-R232 and M-GPRS must keep consistent with each other. As shown in image 20-13 in below:

Figure 20-13