Sheng Jay Automation Technologies Co., Ltd.

SJ-5291

TRACKER

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Catalog

Introduction

SJ-5291MT is an innovative designed product integrated with GPRS and GSM system. SJ-5291 is a high-tech product designed for children, the elderly, mental disorders and bags, luggage, cars...etc. It not only has the SOS system, the tracking function, allowing users to clearly understand the position of the wearer!

A. Main Function

1. SOS Alert：Send SOS SMS to alert user

2. Tracking System： Send the tracker's location by SMS

3. Tracking Software： Receive the tracker's path immediately and clearly by setting Packet and IP

4. Hybrid positioning (Cellular Positioning) When GPS failed. Uses base stations to position.

5. Authorize Number：Authorize number to monitor and configure

6. Anti-theft: Can be set by SMS to detect vibration, once activated, will send the message.

7. GEO-Fence： Support to 5 sets limited area, when you enter in or out the area it will send SMS to alert.

8. DNS service: Domain Name System. Key in your DNS name of the server. Device will link to DNS server first. Connection Priority DNS > IP 1 >IP 2

9. Low-voltage Detection: When SJ-5291MT detected low voltage and it will not work, will be informed via SMS.

10. OTA: Set IP address for OTA (On The Air) then connect to OTA IP address when device turned on and updated it to the latest version automatically.

B. Feature

1. Real-time tracking.

2. Report the tracking path

3. Support to display the tracking path in continuous packet

4. Support setting all command via GSM/SMS

5. Display the tracker's location on Google map by smart phone

C.Package

(1)SJ-5291MT   (2)USB cable   (3) Software CD   (4) MT Setting cable

D. Specification

Item	Detail
GSM　Module	uBloxG-100
GSM bands	GSM850/GSM900/DCS1800/PCS1900
GPRS	GPRS multislot Class 10
SIM interface	1.8 V and 3V support
GPS Chip	Ublox GPS module
Channel	50 Channel
TTFF Hot/Warm/Cold	1 sec /32 sec /32 sec
Sensitivity	-160dBM
Velocity	0.1m/s
Receiver Type	L1, C/A Code
Position Horizontal	<2.5m
Acceleration	Less than 4G
Altitude	50,000 meters max.
Velocity	515 meters/ sec. max.
Datum	WGS-84
GPS antenna.	Embedded
Power input	5v/500mA
Size	61(L)x 43(W)x21(H) mm
Weight	64.4g
Button	Power: Turn on / off the device
	SOS: Emergency key to call server/ cell phone
USB cables	Length 1 meter
Battery Capacity	1000mAh
Operating temperature	-10 ℃ to 60 ℃
Storage temperature	-40 ℃ to 75 ℃

E. Dimension

1	Power Key	4	GSM LED	7	USB power charger /PC setting Slot
2	SOS Key	5	Info LED	8	USB/SIM Protection case
3	GPS LED	6	Power Charge LED	9	SIM Card Slot
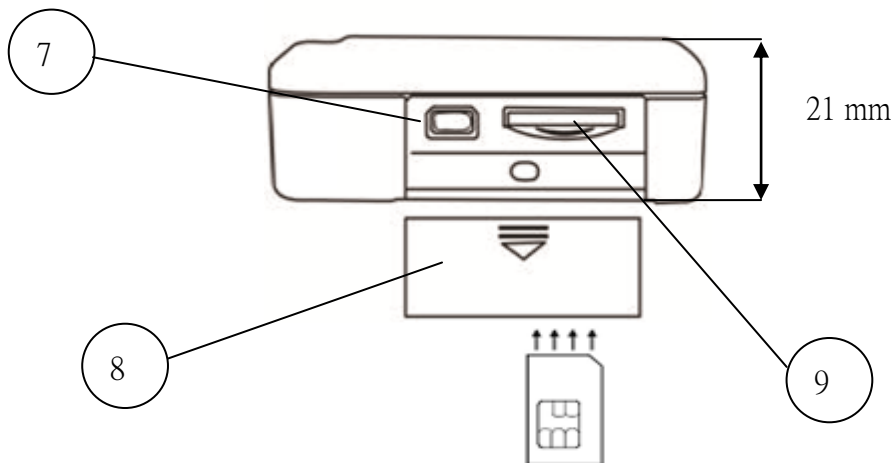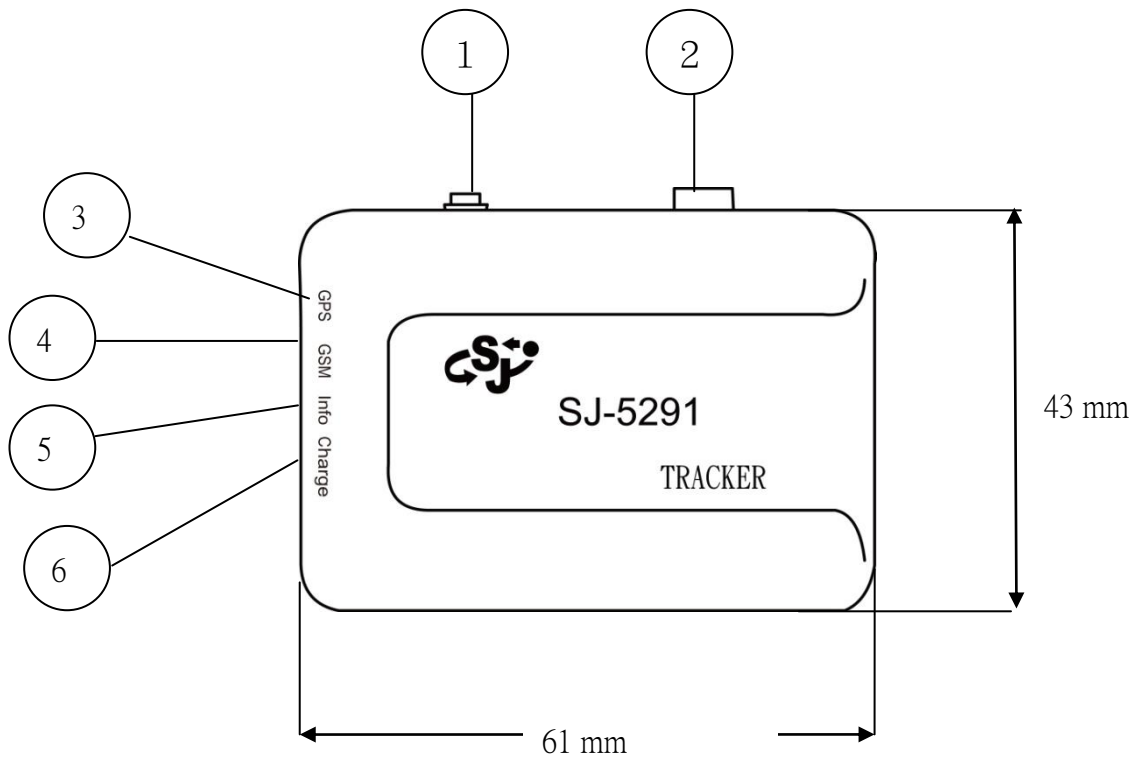
F. Light Signals

LED Status	Orange/charger	Red/Alert	Green/GSM	Blue/GPS
Brightening	charging	Both red & green LED light on –update firmware		GPS Positioning
		GPRS failed	Sending/Receiving SMS	
Rapid Flashing	X	SOS function	X	X
Slow Flashing	X	Low battery notification, flashing per 4 seconds	GSM registration succeed, flashing per 4 seconds	GPS position completed, flashing per second
Off	Full Power	X	GSM registering	X
	No charging			

LED Signal Introduce

Orange LED (Power)-

Display power status

1. Light On- the battery is charging

2. Light Off- 1. Full power

           2. do not connect power

Green LED (GSM)

1. Light on - Sending/Receiving SMS

2. Slow Flashing- GSM registration succeed, flashing per 4 seconds

3. Light off- GSM registering

Updating system and firmware

Both green and red light on

MINI MT light signals display normally status

1. Both blue and green LED light on

2. If GPRS has connected, the green LED flashing per 4 seconds ,

   If GPS has positioned, the blue LED flashing per second

Red LED (Alert)

1. Light on- GPRS connect failed

2. Rapid flashing- SOS triggered

3. Slow flashing- Low battery notification, flashing

Blue LED (GPS)

1. Light on – GPS Positioning

2. Slow Flashing- GPS has position, flashing per second

Mini MT Malfunction solution

1. Hardware operation detection

2. Check the SIM card insert in right direction

3. Confirm Mini MT is full of power

Environment operation Testing

1. GSM registration failed- Move MINI MT to a strong signals of GSM place and try to connect it again

2. GPS unable to position- Move Mini MT to outdoor which can directly face to sky

G. Functional Description

G-1 SOS Alert

Coding the SMS as "ALARM:+cell phone number" and send it to SJ-5291MT SIM card number, SJ-5291MT will set the cell phone number as the receiving SOS message SMS. Press the SOS button more than 3 seconds, SJ-5291MT will send the "SOS" SMS to the setting cell phone number. SJ-5291MT can set 3 cell phone numbers to send the "SOS" SMS.

EX：Coding "ALARM:+886912345678/+886987654321" then send it to SJ-5291MT SIM card number. When SJ-5291MT receive the message, it will set the numbers "+886912345678" and "+886987654321" as the receivers for sending "SOS" SMS. Press the SOS button more than 3 seconds, SJ-5291MT will send "SOS ALARM,TRACKING PLEASE WAIT…" then send a second SMS with the location of the tracker to the cell phone number. Tracker can immediately know the position and speed by SMS.

G-2. Tracking System

Send the SMS "LOCATION" to SJ-5291MT. When SJ-5291MT receives the message, it will send the SMS "TRACKING PLEASE WAIT" first and send the location and status to the tracker's cell phone number by the next SMS. Tracker can immediately know the position and speed by SMS. If the tracking system cannot receive GPS signal, it will send the location SMS by the nearest based station for the tracker.

G-3. GPRS Remote Control

User can install SJ-5291MT remote control software" Data Receive". SJ-5291MT will open GPRS by PC software setting or SMS sending the message "GPRS ON" to the SIM card. You need to send the command setting by SMS before you open the GPRS. The content is: install the real IP in PC/ set the server port/ name of the tracking person/ set the time of packet return (min)

Ex: IP:210.71.190.170／PORT:5000／ID:SJA／TIME:5。

If you want to know the tracker's position, you could send the command to SJ-5291MT to open GPS and report present position by GPRS.

G-4. Authorizing number

This feature can set the permission to designated person. Send "AUTHOR: specified number/ specified number / specified number", this command could accept three specified numbers and used "/" to segment the numbers.，All the tracking result and command settings could be send or receive to specified numbers after finish this command. Non specified person send the SMS command to set or track will receive the error message report. If you want to reset it to the original setting, you have to send the clean command by SMS.

G-5 Anti-theft

Send the command "MOTION: 1~9" to SJ-5291MT by SMS, it will start the motion detection. If the motion time act more than the setting time, the anti-theft function will be started and send the ALARM number by SMS immediately. Command 1~9 means the sensitive of motion detection. According to the sensitive of the order, 1 means the highest sensitive and 9 means the lowest. User can set the motion detection sensitive by the installed place. SJ-5291MT will send the message"MOTION ALARM" by SMS and user can track the location immediately.

G-6 GEO-Fence

GEO-Fence is a virtual perimeter for a real-world geographic area. SJ-5291MT can set 5 GEO-Fence. Geo-fence can be a predefined set of boundaries by user, the boundaries could be set 100 meter to 20 kilo-meter.(setting command 001~200, hundred meters) If you come into or out of the boundaries, SJ-5291MT will send the message "GEO-Fence ALARM" and with which set of the number in or out to the ALARM number by SMS. Ex: GEO-Fence LEAVE 1 represents the first set alert. (GEO-Fence function need to start under GPRS worked successfully.) If you set GEO-Fence function in beginning, SJ-5291MT will detect the boundaries when turn on the device and keep detecting under GPRS connected.

G-7 OTA

SJ-5291MT can update the server real IP and port by the PC software. SJ-5291MT will update the server IP and check the firmware when you turn on it every time. If the firmware is not the latest version, it will download the file to FLASH and confirm the file integrity. It will restart the system and update to the new firmware version. All the process will not obstruct the normal operation of SJ-5291MT.

G-8 Cellular Positioning

When SJ-5291 is indoor or the GPS signal is too weak, SJ-5291MT will use base station to position and send based station information to the ALARM number. Use the based station position, it will be a range area not a position location. SMS Ex : http://www.sja.com.tw/map.aspx?mcc=466&mnc=92&cid=a413&lac=0a2a
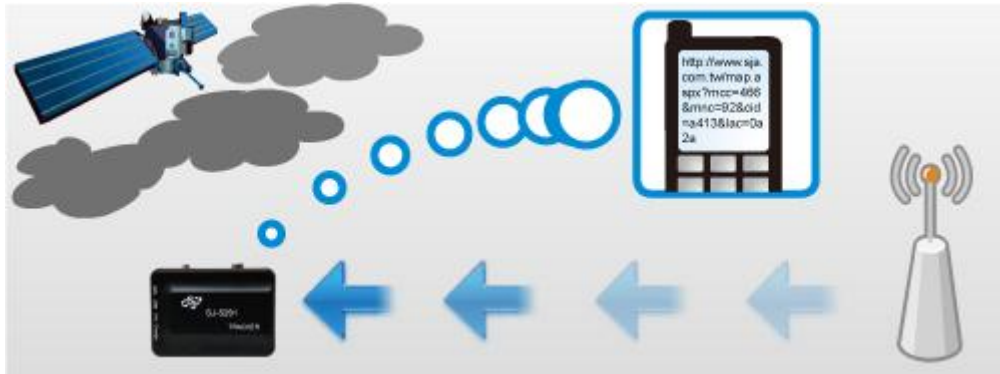
G-9 Low-voltage Detection

SJ-5291MT will automatically detect the voltage. When the voltage is low, it will send the SMS immediately to alert the user.

EX: Tracker Low Battery

G-10 DNS

SJ-5291MT support "DNS"(Domain Name System), it could set a DNS web for the dynamic IP user. Users do not need always to change IP address, just use DNS service to connect the website IP to change it.

H. SJ-5291MT SMS Command

All SMS commands are uppercase letter

Function	Command Example	Explain
Authorization	AUTHOR:+ 886912345678	Authorize users to change the setting. 3 sets maximum EX: 886912345678/5560912345677/886912345676
LOCATION	LOCATION	Check the current location
ALARM	ALARM:886912345678	Send the alarm SMS to the numbers. 3 set numbers maximum EX: 886912345678/5560912345677/886912345676
GEO-fence Status	GEO ON	Turn on GEO-fence
	GEO OFF	Turn off GEO-fence
Remote Monitoring		
APN	APN:APN/Username/Password	Set the APN :(APN)/(username)/(password)
Remote IP setting	IP:***.***.***.***/PORT:****/ID:****/TIME:*	IP: The fixed IP address PORT: Port numbers ID: Maximum 12bits length for ID TIME: Tracking interval time setting 1~120 minutes
Backup remote IP setting	IP2:***.***.***.***/PORT:****	IP: The fixed IP address PORT: Port numbers
OTA Setting	OTAIP:***.***.***.***/OTAPORT:***	OTAIP: The fixed IP address OTAPORT: the port numbers
GPRS ON/OFF	GPRS ON	Turn on the GPRS
	GPRS OFF	Turn off the GPRS
Motion detection	MOTION:0-9	MOTION:0-9 0: off 1 Highest sensitivity 9 Lowest sensitivity

I.SJ-5291MT PC Setting

Please check your software CD.

It includes below software

1. MT SET V2.0

2. MT SERVER V1.2

3. USB Driver for Windows_XP_S2K3_Vista_7

4. dotNetFx40

- **MT SET V2.0**

  Configure your MT via PC.

- **MT SERVER V1.2**

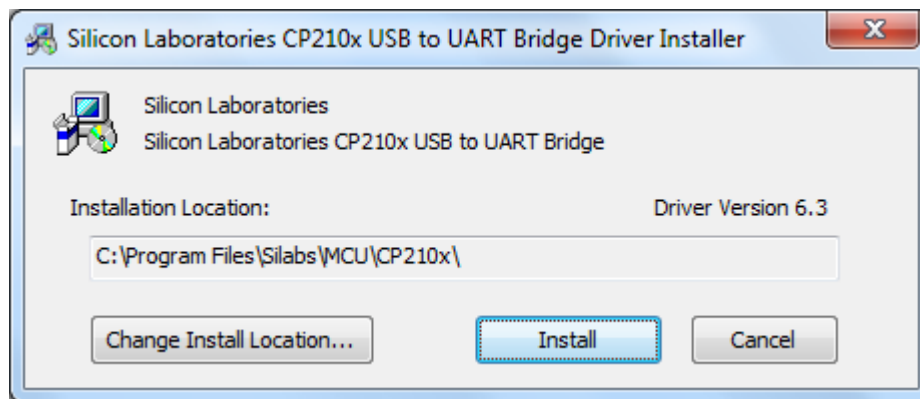 Easily build your own monitor server, and receives data report from SJ-5291MT.

  Provides real-time tracking and review history tracking data

MT SET V2.0

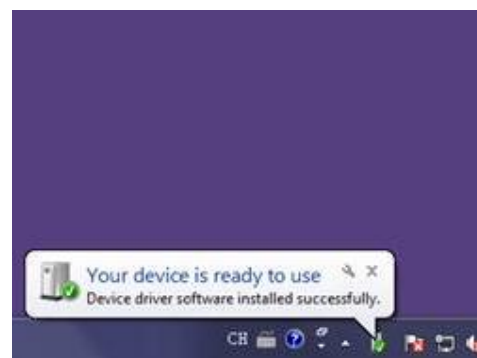1. Open the USB Driver folder and Click "CP210xVCPInstaller.exe"
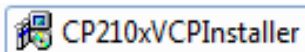
2. Click Install to install the driver

3. Reboot your PC

4. Connect the PC setting cable to the PC and wait for PC setting cable has installed

5. Connect MT setting cable to the MT and PC

6. Run MT.EXE

7. Click "Connect" to start connecting the MT

8. Start to configure your device

9. Put the MT in outdoor to start using

SOS Number:

When SOS alarm，MOTION alarm, GEO-Fence alarm and GPRS transmission failed, send SMS to SOS number. 3 sets number are maximum.　EX: 0912345678

Authorize number

Only authorized numbers can change the setting of this device via SMS 3 sets numbers maximum Ex: 0912345678

Device ID

Set the ID of the device, the ID will show on Server.2-12 bits upper and lower case letters (English) and numbers

APN Name

APN (Access Point Name). Key in APN to access the GPRS Internet. Please contact your SIM card carrier to get the APN.

APN Acc/Pwd

Key in the APN Username and Password. Please contact your SIM card carrier to get the APN.

DNS

Domain Name System. Key in your DNS name of the server. Device will try to link to DNS server first. Connection Priority DNS > IP 1 >IP 2

Server IP1

Set the IP address for your server. When IP 1 failed, auto-connect to IP 2

ServerIP2

Set the backup IP address for your server.   Auto-connect to IP 2, if IP 1 address is failed

OTA IP

Set IP address for OTA (On The Air) Server. Device will connect to OTA server to download firmware.

OTA On/Off

Connect to OTA IP address when Device turned on

Time Interval

Time interval of the GPRS transmission. Setting range is from 001 to 120 Minutes EX: 001 . Send data to server per one minute

The device interval time must same as remote server software Timeout setting.

GPRS On/Off

Turn on/off GPRS function

IMEI: Check device's IMEI code by click "Read"

GEO-Fence 1-5

You can save 5 sets GEO-Fence point. Your PC must be connected with internet.

Center Position

Click the bottom of the map to obtain the latitude and longitude.

Left click on the map then click mark key to get the latitude and longitude.

Double click mouse right key: Zoom out

Double click mouse left key: Zoom in

Radius

Key in 3 digital numbers to define the radius of the GEO-Fence.   100 meter/unit EX: 020 = 2 Km

Alarm Type

Disable: Do not report.

Enter: Enter GEO-Fence will alarm.

Leave: Leave GEO-Fence will alarm

GEO Enable

Detect GEO-Fence when device turn on.

ON: Auto-detect when turn on device.

Off: Off GEO-Fence function

Language

Change the language type

Description

Descript the meaning of the setting

J. SJ-5291MT SERVER (Data Receive)

We offer free remote server software to show the GPRS data that sent by SJ-5291 MT

Easily build your own monitor server, and receives data report from SJ-5291MT.

This software can achieve follow functions

- Real-time tracking
- Tracking History
- MT SERVER V1.2

Requirements for software

1. Operating Systems：Windows XP, Windows Vista, or Windows 7
2. Processor: at least Intel P4 2.0
3. Hard Disk Capacity: at least 2.0GB
4. Memory Capacity: at least 2.0GB
5. .Net Framework 3.5 or higher version
6. Ether Port (LAN Port)：at least 10/100MBPS
7. Fixed IP address (Real IP)

Install DataReceive

1. Please install driver "dotNetFx40"

2. Run DataReceive.exe
3. Select Setup sheet
    - Set real IP address and port
    - Choose your time zone
    - Click "Save" to save the setting
    - Click "Start" to receive the GPS data
4. Select "Map sheet" , and view the real-time tracking

Main Functions

- ◆ **Map**: Display real-time tracking. Display all received data on the Google Map. You can zoom in /out the map 、change the refresh time and view the map in three different type. Also, view all device or only specific device on the map.
- ◆ **Data**: Show the current connected data.
- ◆ **Record**: choose device and date to see the tracking history route.
- ◆ **Setup**: Set system environment: Set IP address and other setting. Display incoming data at right side.

MAP.
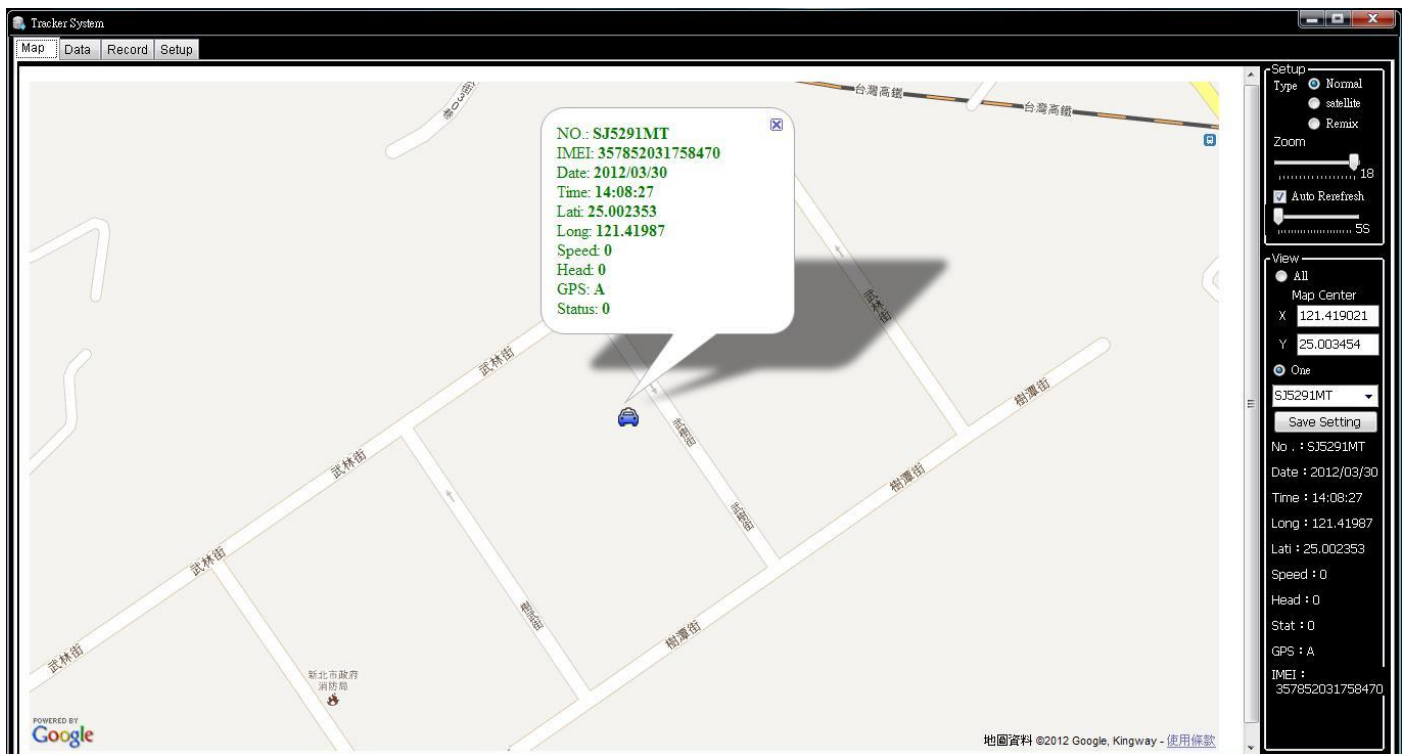
Map Setting

1. Type: Three type map view

2. Zoom: Zoom in / out the map size

3. Refresh: Adjust refresh map from 5 sec to 120 sec

View:

1. All: Monitor all devices on the map. Mouse left click on the map to mark center point of the map.

2. One: use drop-down list to choose device that wanted to display on the map. The chosen device will always be center of the map.

Data:

A. GPS positioning report data

B. Cellular positioning report data

Display all connected device data in this page.

※In cellular positioning report data column, you can see the position in Google Map by click the data

Record

1. Path: Show the file path.

2. Time Start: choose time form 00 AM to 23 PM
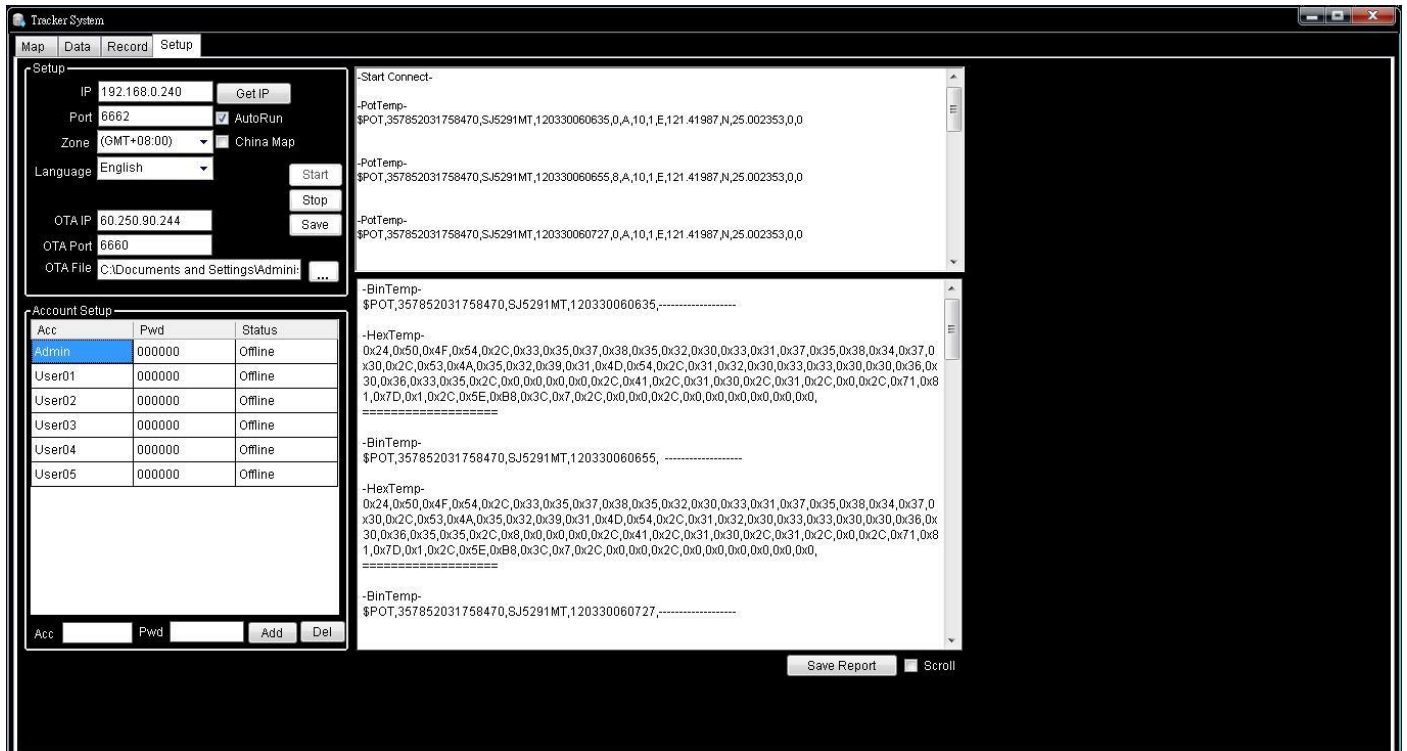
3. Open file: open GPS data file.

   The File.– Gps. Positioning by GPS

   The file.-Gsm. Positioning by cellular base.
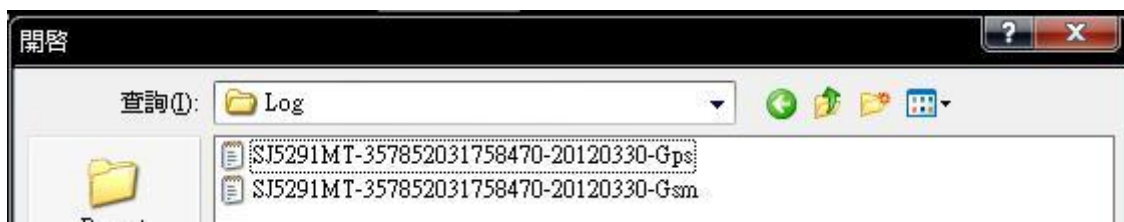
4. Zoom: Zoom in/out the map

5. Interval: the interval of GPS history data

6. Show map: Display the history route

7. Play: Play history tracking route

Setup:

Setup

1. IP: Set real IP address for server

2. Port: set port for server

3. Zone: Choose your time zone

4. Language: Change system language

5. OTA IP: The IP of OTA server

6. OTA Port: The port of OTA

7. OTA file: define the route of the OTA file

OTA Update

※ OTA Server will be auto-run, when DataReceive is activated.

※ Key in the OTA setting in DatarReceive.exe then click Open function in OTA Server V0.01 to start update the tracker device.