



# GV-590

## User Manual

Version 0.2



# Table of Content

<b>Chapter 1 Features and Specification .....</b>	<b>3</b>
Features.....	3
Specification.....	4
Accessories.....	7
Overview.....	8
<b>Chapter 2 Getting Started.....</b>	<b>11</b>
Download Application Software to memory card by card reader ...	11
Attach GV-590 to Cradle .....	12
Charging your GV-590.....	13
SD card sticker.....	13
<b>Chapter 3 Software Application .....</b>	<b>14</b>
Main Screen.....	14
Media Mode .....	15
Music Player .....	16
Video Player .....	18
Photo Viewer .....	20
Setup Mode .....	21
<b>Chapter 4 Bluetooth HandsFree .....</b>	<b>27</b>
Bluetooth main screen.....	27
Search and connect to your Bluetooth phone .....	36
Answer or hang up a incoming call .....	37
Make a call .....	38
Bluetooth Stereo Playback .....	39
<b>Chapter 6 Troubleshooting .....</b>	<b>40</b>
If the GV-590 does not boot up successfully or does not function properly .....	40
Reset .....	40
Safely Remove Hardware .....	42
<b>Federal Communication Commission Interference Statement.....</b>	<b>43</b>

# Chapter 1

## Features and Specification

---

### Features

- Complete car navigation solution in one box including car mount
- Simple touch-screen operation
- 5" screen, 65536 colours, bright TFT LCD
- Smart and easy:
  - Attach, switch it on and go
  - Large Function icons design for easy touched
  - User-Friendly keypad
  - Clear, high quality voice-guided instruction
  - Powered by cigarette lighter or long-life rechargeable battery
  - Easy to be mounted and removed
- Built-in antenna; MMCX-type connector for optional external antenna
- SD storage card expansion slot
- Supports music playback function for "**wma**" file format.
- Supports photo view function for "**jpg**" file format.
- Supports Video player function for "**wmv, mpeg1**" file format.

### Bluetooth

- Auto-Reply mode
- Profile: Headset/ HandsFree/ A2DP/ AVRCP/ OPP
- Phonebook download
- Music playback via Bluetooth

# Specification

## ► System

Electrical Characteristics	
Processor	Samsung S3C2440, 400MHz
OS	WinCE.NET 5.0
Flash Memory	64 MB
SDRAM Memory	64MB
Memory Card Slot	SD/MMC
GPS	SiRF Star III , built-in 18x18 Patch Antenna
DISPLAY	
Display	5", TFT LCD with Touch Screen
Pixels H*W	480*272 (WQVGA)
Display Type	COLOR TFT Daylight LCD
Color Number	65536 colors
Backlight Type	LED x 14
Brightness	Min. 350cd/m <sup>2</sup> Typ. 400 cd/m <sup>2</sup>
Touch Panel	Resistive Type, 8% Haze film
AUDIO	
Internal Speaker	built-in Stereo Speaker, 1W / 8 ohm x 2
Earphone Jack	3.5 mm, Stereo Output
USB	
USB	Support USB 1.1, Mass Storage Driver, Mini USB
POWER SOURCE	
Car Charger	DC 5.0V / 1A
Power Switch	Slide Switch (Battery ON/OFF)
BATTERY	
Battery Cell Type	Built-in Lithium Polymer rechargeable Battery
Battery Capacity	2200mAh
Charging time	3.0 hrs (Battery Capacity 0% to 100%, Charge Current 800mA) with Suspend Mode
	4.0 hrs (Battery Capacity 0% to 100%, Charge Current 400mA) with Active Mode
Operation time	3 ~ 5 hrs (Battery Capacity 100% to 15%)
ANTENNA	
GPS Antenna Type	Built-in ceramic patch antenna
External GPS Antenna	Active external antenna (MMCX)

KEY BUTTON	
Power/Mute	Power (Long Push >= 2sec): Turn on the device, press it again to close any open windows and turn it off (enter a standby mode)
Mute	Mute(Short Push < 2sec ) : Press Menu button to go back to System menu
Reset	Use the stylus tip to press down the reset button through the hole to reset the system.
Battery Slide Switch	(ON/OFF switch) Slide to “OFF” to disable battery power supply to the system.
Volume UP	Volume up
Volume Down	Volume down
Menu	Press Menu button to go back to System menu
Mechanical	
Dimension	150mm(L) x90.5mm(W) x 24.2mm(H)
Main Unit Weight	288g
Temperature	
Operating	0°C ~ 50°C
Storage	-20°C ~ 70°C
Humidity	Operational up to 95% non-condensing
Safety & EMI	
	FCC Approved, CE marked, BQB Approved
Bluetooth	
Chip	CSR, BC03 multimedia
Profile	Support: Headset / Handsfree / A2DP / AVRCP / OPP
Sensitivity	-75 dBm @0.1% BER
Accessory	
Car charger	5V / 1A
Travel charger	5V / 1A

## ► GPS Specification

Electrical Characteristics	
GPS Chipset	Sirf Star III
Frequency	L1, 1575.42 MHz
C/A Code	1.023 MHz chip rate
Channels	20 channel all-in-view tracking
ACCURACY	
Position Horizontal	10 meters, 2D RMS 1-5 meters 2D RMS, WAAS corrected
Velocity	0.1m/sec
Time	1 micro-second synchronized to GPS time
DATUM	
Datum	Default: WGS-84
ACQUISITION RATE	
Hot start	1 sec., average
Warm start	38 sec., average
Cold start	42 sec., average
Reacquisition	0.1 sec. average
PROTOCOL	
GPS Protocol	Default: NMEA 0183 (Secondary: Sirf binary)
GPS Output format	GGA(1sec), GSA(1sec), GSV(5sec), RMC(1sec), GLL, VTG is optional
DYNAMIC CONDITION	
Acceleration Limit	Less than 4g
Altitude Limit	18,000 meters (60,000 feet) max.
Velocity Limit	515 meters/sec. (1,000 knots) max.
Jerk Limit	20 m/sec**3

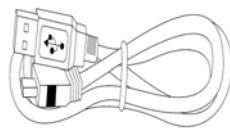
## Accessories



GV-590 Main Unit



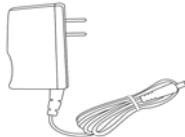
Mount



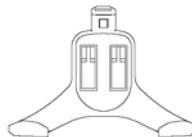
USB cable



DC charger



AC adapter



Cradle



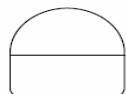
Quick Guide



SD card (optional)



CD or DVD (user manual, driver, Application, map data...)

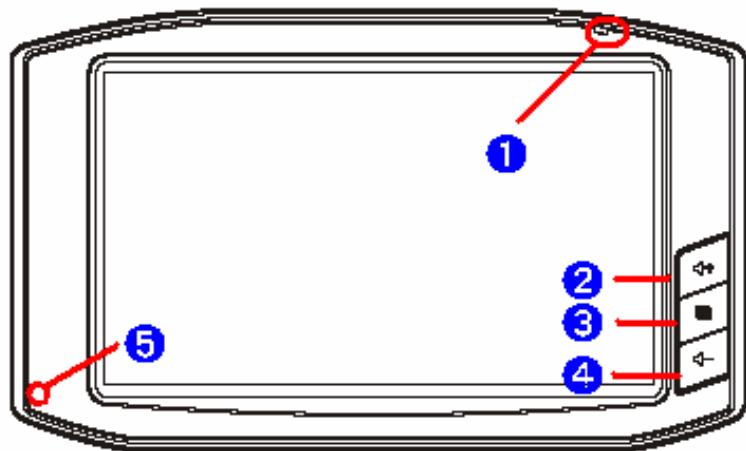


SD PULL Label

**Note:**

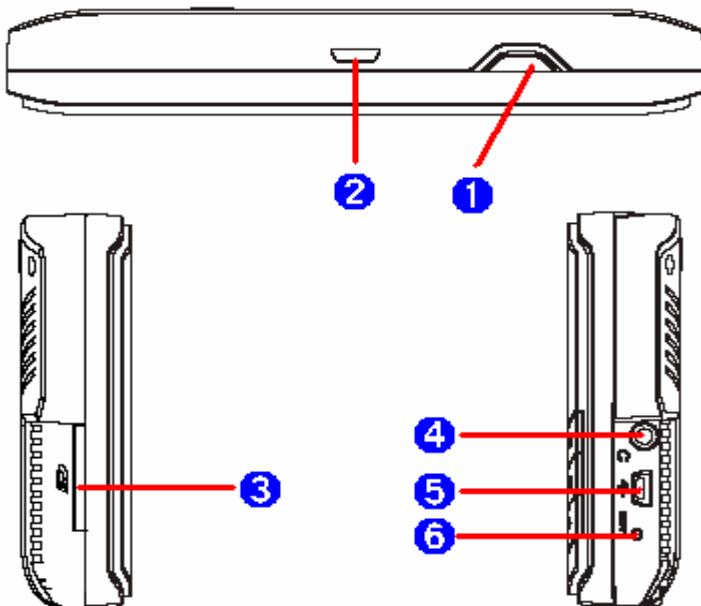
1. If any item is missing or damaged, please contact with your local retailer.
2. Fittings graphic presentation can as material object slightly the getting more different, please by fittings not enclosed not real as the accurate.

## Overview



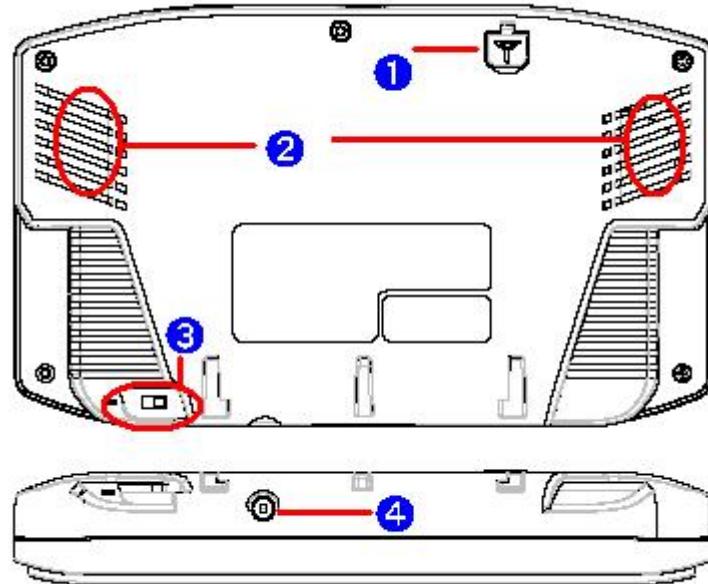
### Front View

① Power LED	Solid Red – Battery is lower than 40%. Solid Amber – Battery is being charged. Solid Green – Battery full charged.
② Volume up	Volume up button.
③ Volume down	Volume down button.
④ Menu button	Press the Menu button to go directly to Main Menu of the application.
⑤ Microphone	Microphone is enabled when you connect GV-590 with your Bluetooth cell phone.



#### Side View and Top View

<b>①</b> Power /Mute button	<b>Power</b> (Long Push>2 sec): Turn on the GV-590, press it again to turn it off (enter the standby mode).  <b>Mute</b> (Short Push<2 sec): Press to mute the audio, press again to resume.
<b>②</b> Clip groove	For the cradle to clip tight to the main unit.
<b>③</b> SD card slot	The Navigation software, map data and other media files can be stored in the SD card.
<b>④</b> Earphone jack	Plug the earphone or headset to the socket, you can listen to the navigation voice guide or enjoy your favorite music.
<b>⑤</b> Mini USB port	Connect the GV-590 to PC via an USB cable for data transfer.
<b>⑥</b> Reset button	Use the stylus tip to press down the reset button through the hole to reset the system.



#### Bottom View and Rear View

<b>①</b>	External Antenna connector	For you to connect an optional MMCX-type external antenna.
<b>②</b>	Speaker	For output the music or navigation voice.
<b>③</b>	Battery Slide Switch	<p>Slide the switch to "OFF" position to prevent from accidentally turning on the device by touching the power button. If you want to use this device, be sure to slide the switch to the "ON" position.</p> <p>① The purpose of the <b>Battery Slide Switch</b> is to cut off power to the unit. It is used to disable the unit in transit from the factory and if the unit will be in storage for long periods of time. Be sure that the switch is in the "ON" position when you remove the unit from the box. The GV-590 will <b>NOT</b> charge if the switch is in the "OFF" position.</p>
<b>④</b>	Charging connector	For power supply and battery charging.

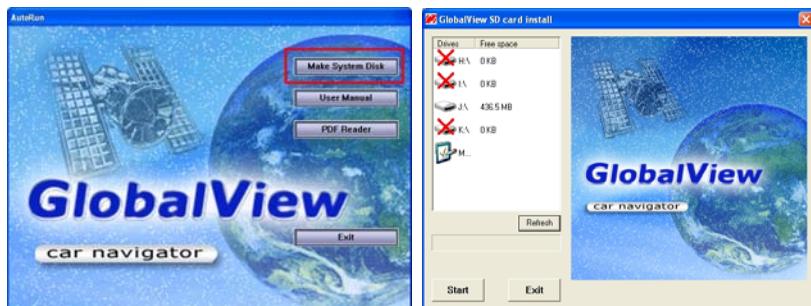
# Chapter 2

## Getting Started

Before you start to use the GV-590, please connect it with the AC adapter and plug to power socket for battery charging. When it is in charging, the status indicator will be amber. If the battery is fully charged, the status indicator will be lit on green.

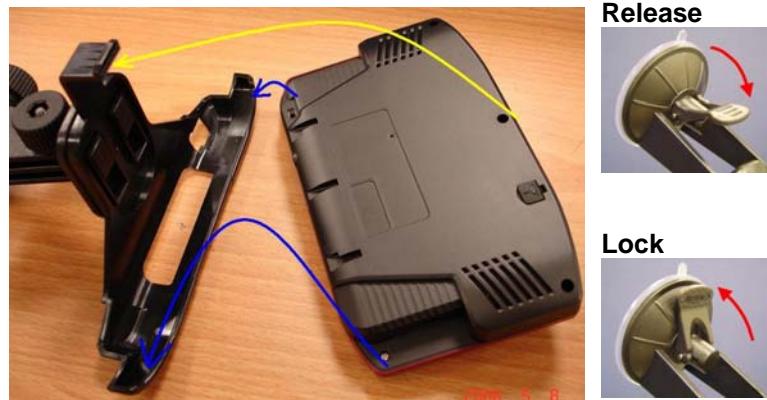
### Download Application Software to memory card by card reader

Insert the SD card into your card reader which is connected to your PC. Insert the CD/DVD into the CD/DVD-ROM drive; the installation program will automatically start. (If your autorun feature is disabled, please manually execute this program by double click the "auto.exe" from the root directory of CD/DVD.) Click "**Make System Disk**" button for downloading the application and map into SD card.



Click on the drive letter which your SD card is inserted, and click on "**Start**" button. After the download process is finished, please remove the SD card from card reader, insert it into your GV-590 and restart it.

## Attach GV-590 to Cradle



1. Place the GV-590 on the bottom of the cradle.
2. Push the GV-590 to the clip lock on the top of the cradle.
3. Clean your windshield with a lint-free cloth.
4. Place the suction cup on the windshield.
5. Flip the lever towards the windshield.

To remove the GV-590, flip the lever backwards and the pull the tab on the suction.

- ① Never pull on mounting arm to remove from glass.
- ① For safety issues, please don't mount the GV-590 in the front of an airbag.

## Charging your GV-590

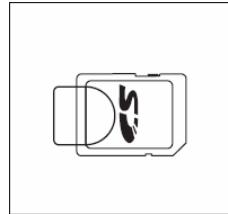
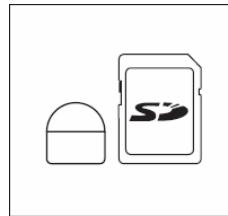


Plug the end of AC adapter or DC charger into the charging connector of GV-590. The power LED will light. When battery is fully charged, the LED becomes green.

## SD card sticker

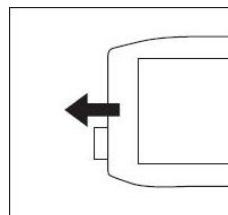
---

Pastes SD PULL LABEL on the SD CARD.



---

So then may in GV-590 take out SD CARD by the arrow direction.



# Chapter 3

## Software Application

### Main Screen



### Main Screen

 Navigation	Tap on the <b>Navigation</b> icon to start the Navigation application.
 HandsFree	Tap on the <b>HandsFree</b> icon to start the Bluetooth HandsFree application.
 Media	Tap on the <b>Media</b> icon to enter the sub-screen which contains the music player and photo viewer.
 Setup	Tap on the <b>Setup</b> icon to enter the sub-screen which you can do the settings of the device.
2007/01/01 12:03	Tap this icon to set the date and time.
	Tap this icon to do power management settings.
 	Battery capacity is 75%~100%.
 	Battery capacity is 50%~75%.
 	Battery capacity is 25%~50%.
 	Battery capacity is below 25%.
 	AC adapter is connecting to the device.

## Media Mode



### Media Screen



Tap on the **Music** icon to start the music player.



Tap the **Video** icon to start the Video player.



Tap on the **Photo** icon to start the photo viewer.



Go back to Main Screen.

## Music Player



### Music Player

	Tap this button to play the next song.
	Tap this button to play the current song.
	Tap this button to pause the playing.
	Tap this button to play the previous song.
	Tap this button to stop the playing.
	Sequentially play the songs from playing list.
	Randomly play the songs from playing list.
	Play all songs from playing list once and then stop playing.
	Continuously play the songs from playing list without stop.
	Edit the playing list.
	Go back to Media Screen.



## Edit Playing list

- Music Player will search for the “Music” folder of the SD card for all music files and display them on screen. Tap directly on the file name of the song to add or remove it from playing list. The song has been added to the list becomes blue. The song has been removed from the list becomes black.



Use up or down arrow buttons to highlight the song. Tap this button to add this song to playing list.



Use up or down arrow buttons to highlight the song. Tap this button to remove this song from playing list.



Tap this button to add all songs to the list.



Tap this button to remove all songs from the list.



When you are done with the editing, tap this button to save and go back to Music Player screen.



Tap this button to cancel editing and go back to Music Player screen.

## Video Player



### Video Player

	Tap this icon to play the clip.
	Tap this icon to pause the clip.
	Tap this icon to stop playing.
	Tap this icon to select the clip.
	Tap this icon to view this image in full screen mode
	Go back to Media Menu.



## Select Video Files



Scroll up or down to select video files from the previewing area. All video files (.wmv, .mpg) in the SD card folder "Video" will be shown on the previewing area.



Go back to Video player.

## Photo Viewer



### Photo Viewer



Photo Viewer will search for the "Photo" folder of the SD card for all supported image files and display in thumbnail mode.

Use up or down arrow buttons to scroll the page.



Tap to select an image and tap the **Full Screen** button on left side to view this image in full screen.



Go back to Media Screen.



### Full Screen mode



Tap up or down arrow buttons on the right side to view previous or next image.



Tap the close button on left top corner to end full screen mode.

## Setup Mode



### Setup Screen



Display the Flash memory capacity, SD card capacity, the PCB version and the firmware version information.



Show battery status. While charging, the battery animation will be activated.



Change backlight brightness.



Set date, time, language, and time zone.



Show product information.



Calibrate touch screen.



Go back to Main Menu.



## System Information



Go back to Setup Screen.



## About



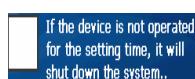
Go back to Setup Screen.



## Power



Show battery status. While charging, the battery animation will be activated.



Tap to check the box to enable power saving. If the GV-590 is connected to the AC adapter, the power saving will be disabled.



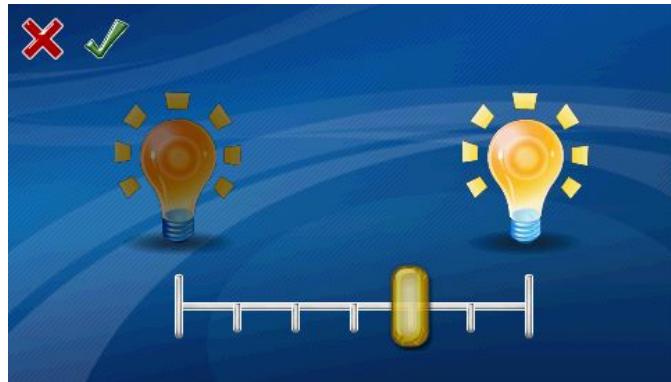
Set the time for power saving.



Cancel and go back to Setup Screen.



Save the setting you made and go back to Setup Screen.



## Brightness



The backlight brightness has 0~6 levels from left to right. The default is set to the 6<sup>th</sup> level.



Cancel and go back to Setup Screen.



Save the setting you made and go back to Setup Screen.



## Regional Setting

12:35:11 Set the time and **date** of your local area.

2007 / 01 / 01 Set the date.

Select Language: English (English) Select the language of the system.

Select Timezone: (GMT) Greenwich Mean Time : Dublin, Edinburgh, Lisbon, London Set the time zone.

 Cancel and go back to Setup Screen.

 Save the setting you made and go back to Setup Screen.

Carefully press and briefly hold stylus  
on the center of the target.  
Repeat as the target moves around the screen.



New calibration settings have been measured.  
Tap the screen to register saved data.

Wait for 30 seconds to cancel saved data and  
keep the current setting.

Time limit : 29 sec

## Screen

- Run the screen calibration program. Press and hold the stylus on the center of the target. Repeat on four corners.
- When the new calibration is done, tap the screen to save the setting or wait for 30 seconds to cancel the calibration.

# Chapter 4

## Bluetooth HandsFree

### Bluetooth main screen



#### HandsFree



**Phone Dialer:** Tap on this button, GV-590 will search and connect to the previous paired HandsFree device. After connection is established, it enters Phone Dialer mode.



**Phone Book:** Tap on this button, GV-590 will search and connect to the previous paired HandsFree device. After connection is established, it enters Phone Book mode.



Tap on this button to activate the Bluetooth function and automatically search and connect to the previous paired HandsFree device. If connection is established, you will see the device name shown on the right upper corner of screen. Tap on this button again to disable the Bluetooth function.



Tap on this button to enter device list screen. You can select a device to connect A2DP/AVRCP profile. If connection is established, it shows the A2DP screen.



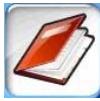
Tap on this button to enter the Bluetooth setup mode.

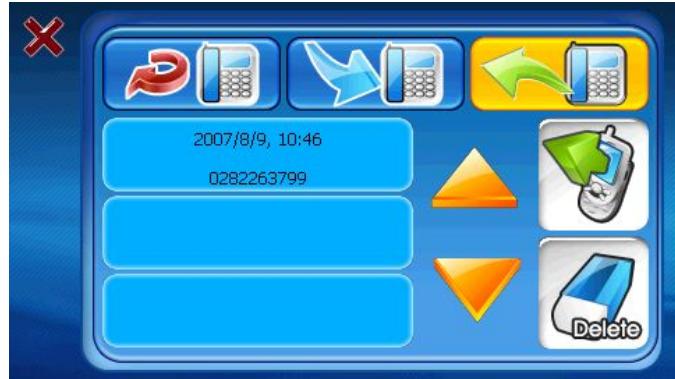


Go back to Main Screen.



### Phone Dialer

	Backspace button		Call record
	Dial button		Phone book
	Go back to HandsFree Screen.		



### Call Record

	Display the missed call.		Dial button
	Display the received call.		Delete record
	Display the dialed call.		Go back to Setup Screen.



### Talking mode

	Press this button to mute your voice. The other party could not hear your voice. Tap it again to resume.		Press this button to hang up the phone.
	Press this button to show the extension number input screen.		Press this button to switch calling source between cell phone and GV-590.



## Setup



Search Device: Tap on this button to search the Bluetooth device nearby. Up to 10 devices can be searched. If pairing process is finished, it returns to Main screen. If pairing process is failed, it returns to Pin Code screen. Up to 4 Bluetooth paired devices can be stored in the list of PND.



Device List: Tap on this button to enter the device list. Select the device to connect to Handsfree profile. If connection is established, it returns to Main screen. If the Bluetooth device you select does not support Handsfree, you will see a warning message on screen.



Set PND Name: Tap on this button to set the PND name.



Version: Tap on this button to display the hardware and software version of Bluetooth module



Reset: Tap on this button to enter Reset mode.



Go back to HandsFree Screen.



## Device List

- Up to 4 Bluetooth paired devices can be stored in the device list. You can select a Bluetooth device from this list. The selected device will be highlight.



Connect: Connect to the selected device and go back to main screen. If the Bluetooth device you select does not support Handsfree, you will see a warning message on screen.



Delete: Delete the device from list.



Go back to Setup Screen.



## Set PND Name

- The default name of the PND is "GPS BT Carkit". You can change it as your wish.



When you finish editing, press this button to confirm.



Press this button to switch between alphabetical and numerical keypad.



Backspace key to delete from the last character.



Go back to Setup Screen.



### Version info

- Display the hardware and software version of Bluetooth module.



Go back to Setup Screen.



## Reset



Default: Restore the factory default settings of Bluetooth.



Clean Phone Book: Clean the phone book data which downloaded from your Bluetooth cell phone.



Auto-Reply Setup, Default: 10 sec



Go back to Setup Screen.

## Search and connect to your Bluetooth phone



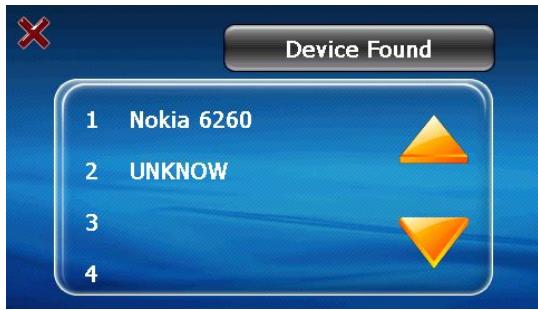
Tap on Setup icon to enter Setup mode.



Tap on Search Device icon to search your Bluetooth cell phone.



GV-590 begins to search the device.



The found device is shown on the list. Tap on the device you want to connect with.



If connection is established, the name of the connected device will appear on the upper right corner of screen.

## Answer or hang up a incoming call



When you receive a incoming call, you can press the left icon to accept the call or press the right icon to refuse and hang up the call.

## Make a call



Tap on the Phone Dialer icon.



The dialing screen appears. Input the number and tap on Dial button.



The dialing screen appears.



Phone call is established.

## Bluetooth Stereo Playback



Tap on the Stereo Playback icon, and then select your device from device list.

If connection is established, it shows the A2DP screen. You can play, pause or stop music from screen buttons. Buttons for Next and Previous are also supported.

# Chapter 6

## Troubleshooting

---

### If the GV-590 does not boot up successfully or does not function properly

1. Please check if the ***Application software*** is properly installed in the SD memory card.
2. Please check if the ***SD memory card*** is inserted into the SD expansion slot.
3. Please check the ***battery power***. (The red light indicates the battery power is low and needs to be charged. The amber light indicates that it is in charging status, and the green light will be on when the battery is fully charged.)
4. Perform the “***Reset***” to restart the device.

### Reset

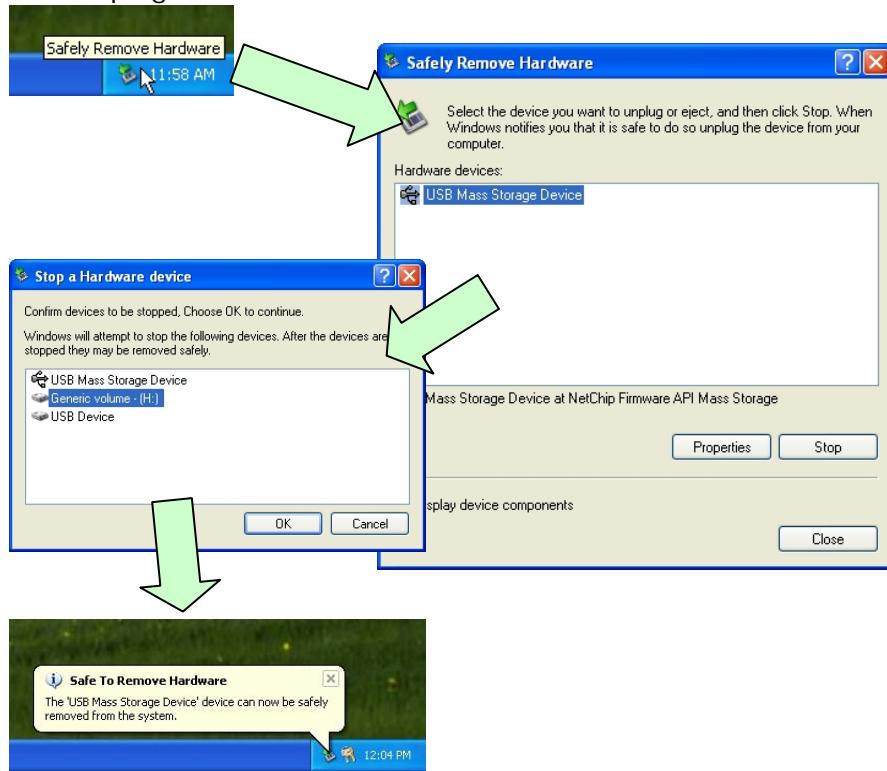
If your GV-590 is down or it encounters an unexpected error, you can reset it. You will need to use a stylus or pencil to press the reset button. Pressing the reset button will restart the system retaining all the information stored on the device.

	If your car windows equipped with Window Films for reducing heat and blocking the harmful UV rays, it may also slightly affect the receiving of GPS signal. Thus, the cold start time will take longer then usual.
	If the car is moving, it may also affect the time for GPS fix. We suggest that you stop the car while you turn on the GV-590 for a quicker GPS fix time.
	Please avoid excessive heat and humidity. Please do not leave the GV-590 in your car under the direct sunshine with windows closed. Place it in a high temperature environment may damage its LCD display or the device.

## Safely Remove Hardware

Before you remove the memory card from the card reader, or before you unplug the USB cable from the device or USB port, please safely remove the hardware by the following processes:

1. Double click the "Safely Remove Hardware" icon from the task bar on the right bottom corner of desktop.
2. Select the hardware device and then click the "Stop" button.
3. Confirm by selecting the device again and click "OK" button.
4. When you see a message showing "Safe To Remove Hardware" on desktop, then you can remove the memory card or unplug the USB cable.



---

### **Federal Communication Commission Interference Statement**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

**IMPORTANT NOTE:**

Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. To maintain compliance with FCC RF exposure compliance requirements, please follow operation instruction as documented in this manual.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.