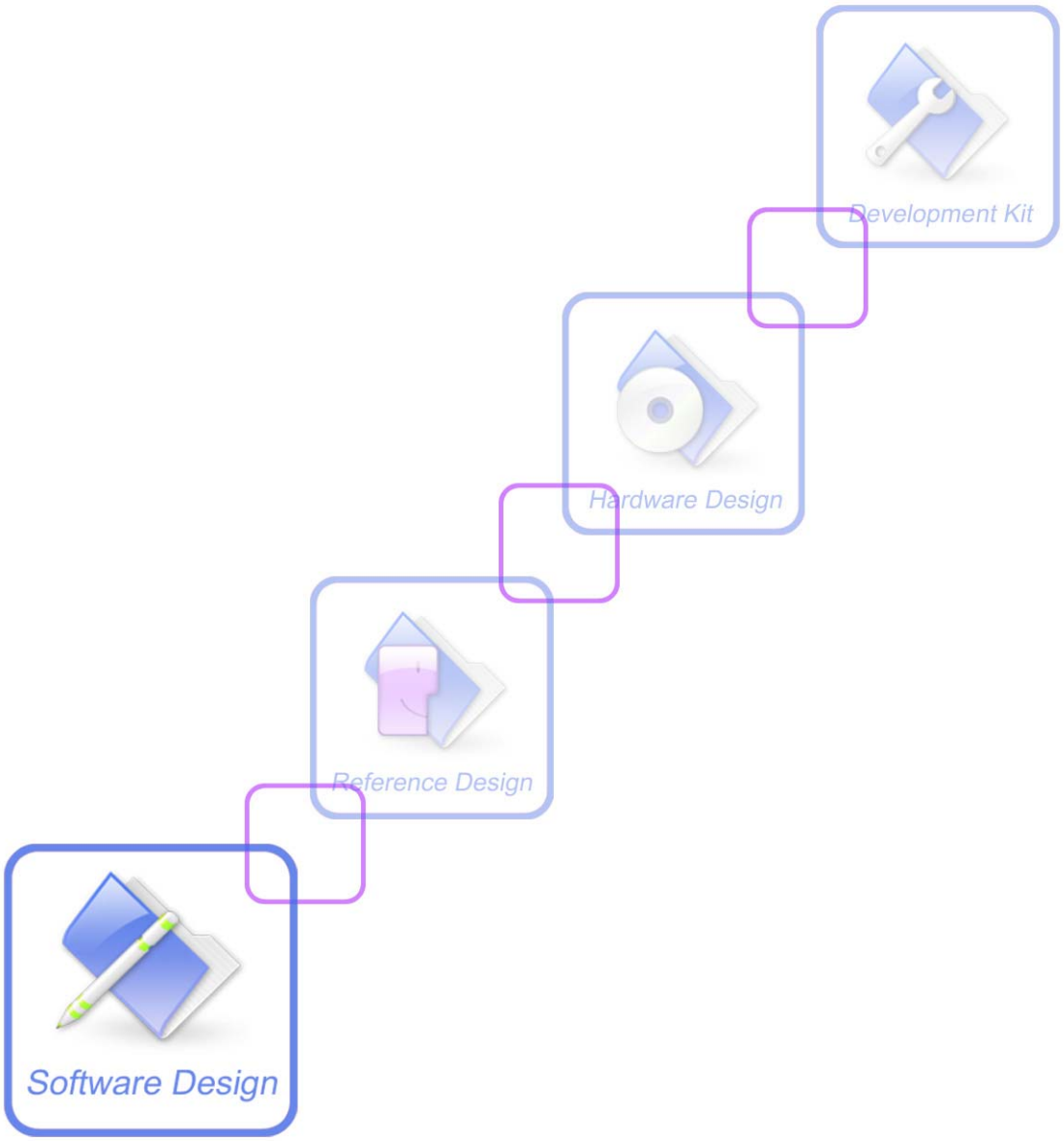
SIM52xx_GPS_Assist_location_Application_Note_V1.02



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Version History

Version	Chapter	Comments
V1.00	New Version	
V1.02	dyy	增加对 AT+CASSISTLOC 命令的详细说明。

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Cell Location Application Note

1. Introduction

1.1 Overview

This document gives the usage of SIM52XX Cell Location functions. Users can get useful information about the SIM52XX Cell Location functions quickly through this document.

The Cell Location functions are provided in AT command format, and they are designed for customers to design their GPS applications easily. User can access these Cell Location AT commands through UART/ USB interface which communicates with SIM52XX module.

The principle of Base station assisted positioning is: the device transfers its cell ID to the server, then the server responds back its coordinate and other information back. Combining GPS positioning data it will improve device positioning ability.

Base station assisted positioning is mainly used in the following scenarios:

- In the situation of GPS signal interruption situation, such as in indoor environment, tunnel, underground passage, underground parking lot and so on.
- In the situation that GPS signal is disturbed. When the device is disturbed by GPS-interrupting equipment, and the device still has GSM/UMTS signals, it could get coordinate data by Cell Location.

When combining the base station positioning and GPS positioning method, it will be more effective than using GPS location technology alone.

1.2 References

The present document is based on the following documents:

[1] SIMCOM_SIM52xx_ATC_EN.pdf

1.3 Terms and Abbreviations

For the purposes of the present document, the following abbreviations apply:

- AT ATtention; the two-character abbreviation is used to start a command line to be sent from TE/DTE to TA/DCE
- GPS Global positioning system
- MNC Mobile Network Code
- MCC Mobile Country Code
- LAC Location Area Code
- Cell ID Cell Tower ID

2. Cell Location Setting

The purpose of this section is to help get you start with Cell Location setting.

2.1 Set retry times

This is used to set the max number to try connection when the http connects if failed.

- Set the retry times:

AT+ CASSISTLOCTRYTIMES=3,2

The first parameter is the number to retry when error occurred. The second parameter is the time between each try, the unit is second, range is 1 - 60*60.

2.2 Set assist location mode if necessary

We can use this AT to set the mode of location. 0 – using single cell. 1 – using multi-cell.

- Set assist location mode:

AT+ CASSISTLOCMODE *=1*

2.3 Set location report URC format if necessary

We can use this AT to set the location report URC format. 0 – report detail address. 1 – not report detail address.

- Set location report URC format:

1. AT+CASSISTLOCFORMAT =0

The report location infomation format:

+CASSISTLOC:UTF-8,33312E323231373838,3132312E33353634323535,,313133382E30,,,4A696E7A686F6E67205264,,5368616E67686169,,5368616E67686169,4368696E61,434E,,301012,071504

2. AT+CASSISTLOCFORMAT =1

The report location infomation format:

+CASSISTLOC:31.2224168,121.353584,,1029.0,,050912,064437

3. Start/Stop Cell Location

The main AT commands：

AT+CASSISTLOC=<autorun>[,<cid>[,<language>,< time_between_fix>]]

Parameters description：

<autorun>: 0 – stop location
1 – start location, only once（Must set the cid）
2 – start cycle location （Must set the cid）
<cid>: network parameters, refer to AT+CGSOCKCONT.
<language>: accept language. Refer to Google standard: en_GB, zh_CN and so on.
Not required, the default value is en_GB.
<time_between_fix>: Time interval of fix(second)，range: 1 second – 24 hours.
Not required, the default value is 1 second.

3.1 Start Cell Location

Two methods can start Cell Location:
1. AT+CASSISTLOC=1,1
2. AT+CASSISTLOC=2,1

The parameter 1 – start location, only once; 2 – start cycle location.

The report GPS location infomation format:
+CASSISTLOC:UTF-8,33312E32323136363439,3132312E33353532353934,,3734322E30,,,5869656865205264,,5368616E67686169,,5368616E67686169,4368696E61,434E,

3.2 Stop Cell Location

This method can stop Cell Location:
1. AT+CASSISTLOC=0

4. Q/A

4.1 What is the difference between Cell Location and GPS?

Cell Location gets the coordinate data from Google server through GSM/GPRS/WCDMA by the device's Cell ID. GPS acquires positioning data by GPS receiving module. The advantage of Cell location vs. GPS is the positioning range is bigger, the disadvantage is not as accurate as GPS.

4.2 What is the difference between Cell Location and AGPS?

AGPS is a positioning technology combining network base station information and GPS information, it needs GSM/GPRS/WCDMA network and GPS receiving module on the device, but Cell Location only

needs the network.

4.3 Can Cell Location and GPS be used together?

They can be used simultaneously. There is no dependency on each other.

4.4 Is switch necessary when Cell Location and GPS are used simultaneously?

There is no need to switch between two modes during its usage. GPS data come from GPS receiving module and coordinates data of Cell Location come from the network. Both will report data by serial port.

4.5 Is there extra charge for Cell Location?

It's not necessary! The positioning information data comes from Google server, it is acquired from Google open interface. These data are free, and without extra cost.

4.6 What is the data throughput for a single Cell Location positioning?

The throughput is about 0.3k on average every time, with the largest throughput less than 888 bytes. There will be no data flow if it does not ask for positioning.

4.7 What is the accuracy of Cell Location positioning?

It is 50-500 meters in the city zone, and 500-3000 meters in the suburb.

4.8 What is the coverage for Cell Location?

The coverage is over 98%.

4.9 How fast is Cell Location positioning?

The Cell location positioning speed is fast, it is 2-3 seconds in the normal network.

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