Gj GPS JAKE USER GUIDE

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INTRODUCTION

GPSJake is a J2ME phone app (developed for Symbian^3 devices but tested extensively on the Nokia N8) which allows the user to geo reference a photograph of an Ordnance Survey map and use this map for navigation with the phone's GPS or a Bluetooth GPS receiver.

Capabilities are as follows:

1. Allow the user to spatially reference an OS map image
2. Display GPS related information such as speed, heading etc. and trip stats.
3. Load routes using GPX which can be highlighted and used to define a route. The user can choose to play an audible warning if they stray off course.
4. Export GPS logs using GPX (which can be later be used as routes) or NMEA.
5. Select pre-recorded vocal prompts which can be played along a route at a way point (e.g. turn left, straight ahead etc.) or record personal ones (e.g. turn left at the church, careful it's a main road etc.) – these are called guidance points.
6. Simulate a route using a recorded NMEA file.

Important Notice

The user must have rights to the map image to be used. The image can be a photograph of an OS sheet the user owns. Copying the map in this way for personal, non-commercial use is allowed under the principle of 'fair dealing' set out in the Copyright, Designs and Patents Act 1988. The following text must be displayed on the copy (the application allows the display of this):
Reproduced by permission of Ordnance Survey on behalf of HMSO. @ Crown copyright. All rights reserved.

Note: the user could also use a digital OS map which they have the rights to.

The sections below explain the main capabilities of GPSJake. Other menu options should be self-explanatory.

GPSJake is developed by Mike Glynn www.gt140.co.uk twitter:@lessthan141

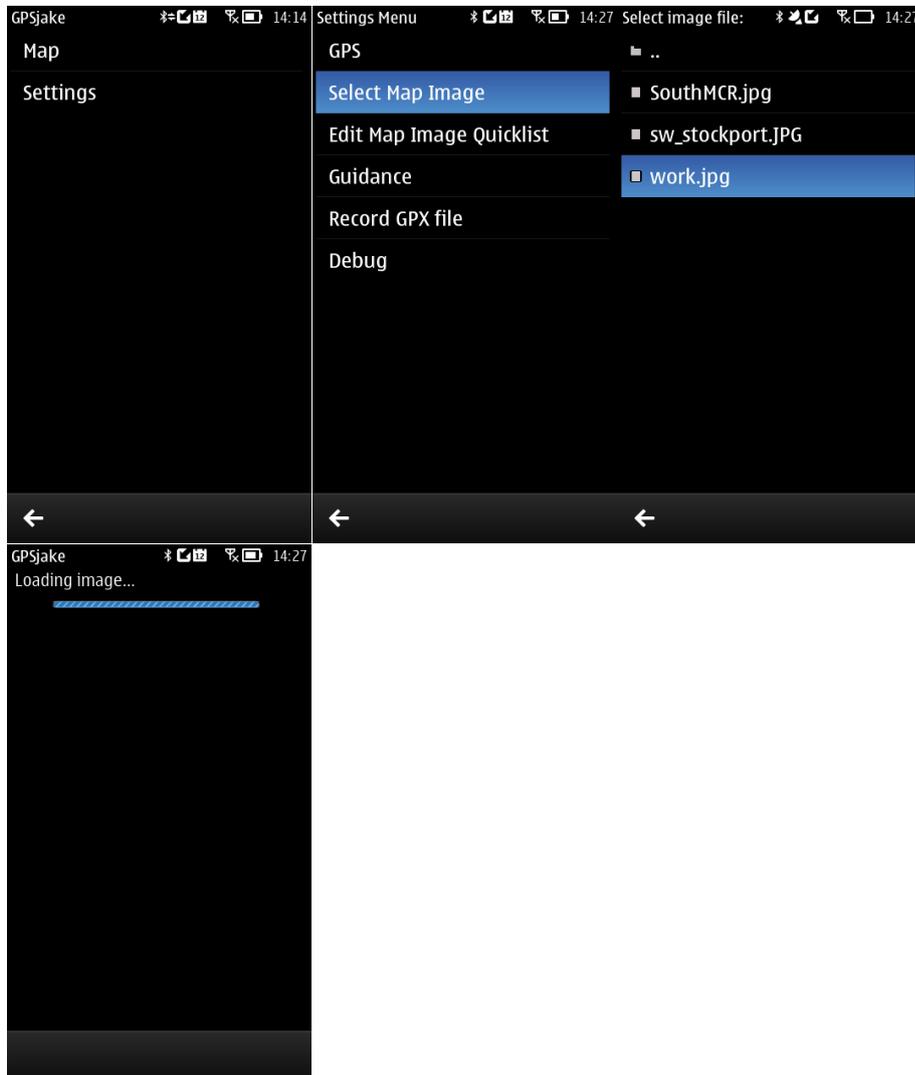GPSJake uses the following sounds made available under Creative Commons Attribution 3.0:

http://soundbible.com/1251-Beep.html by Mike Koenig

http://soundbible.com/1063-Radio-Interruption.html by Mike Koenig

LOAD MAP IMAGE

Main Menu->Settings->Select Map Image

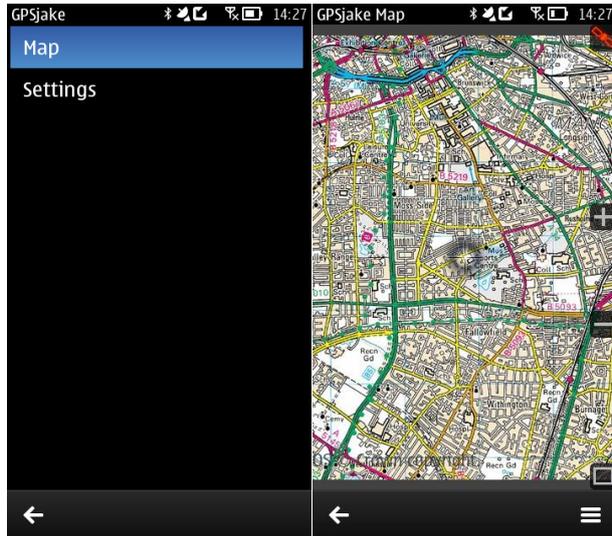This menu option allows the user to browse the phones file system in order to select a map image to use.

GPSJake loads the whole image into memory allowing for fast panning. This means there is a restriction on the size of map that can be loaded. For Symbian^3 devices this is 3000000 pixels.

DISPLAY THE MAP

Main Menu->Map

Note the menu on the Map screen (bottom right) allows the Ordnance Survey Copyright message to be displayed.
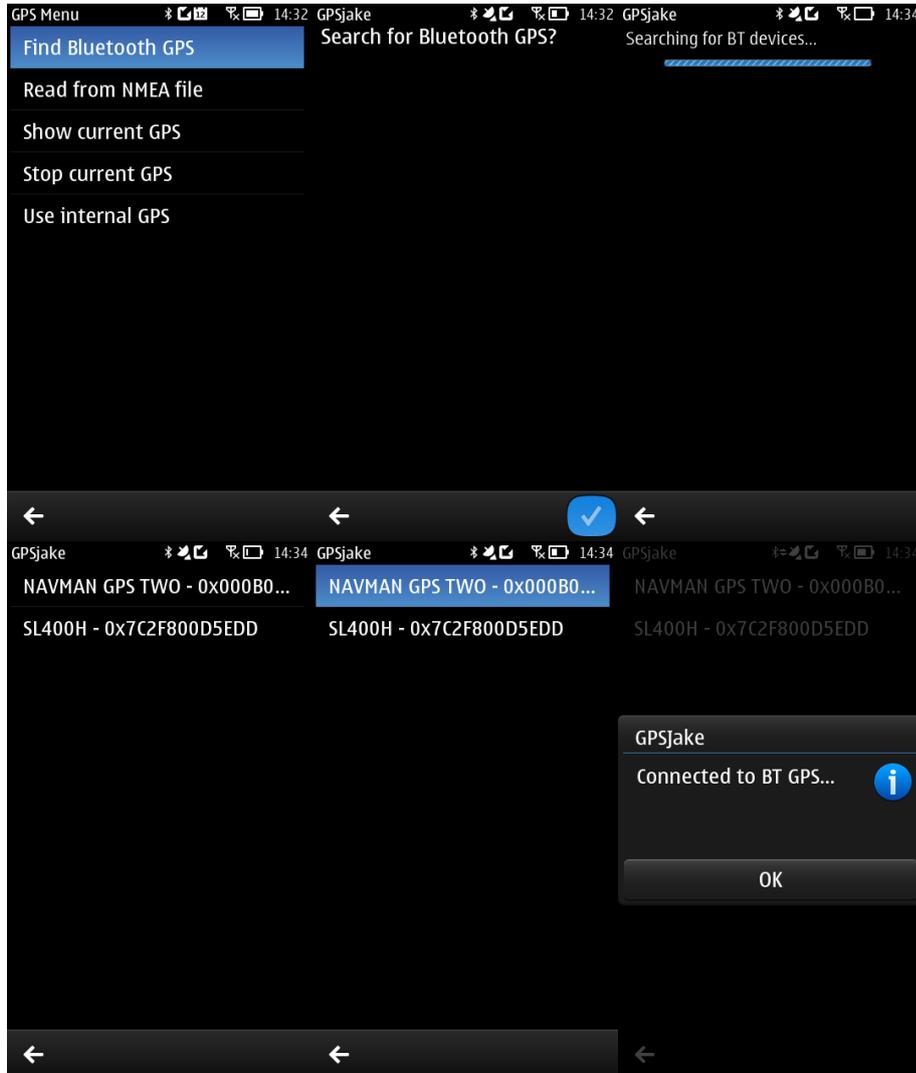
CONTROLLING THE MAP VIEW

The map can be panned using touch scrolling, zoomed (+/- buttons on the right of the screen) and made full screen using the maximise button on the bottom right of the screen. Clicking the GPS status icon in the top right of the screen makes the map pan with GPS (as long as a GPS fix has been established).

GPS Status

Zoom in

Cross hair

Zoom out

Full screen on / off

Map menu

SELECTING A GPS SOURCE

Settings->GPS

GPSJake can use a Bluetooth GPS, the phone's internal GPS) or read GPS data from an NMEA. This last option is useful for simulating a route.
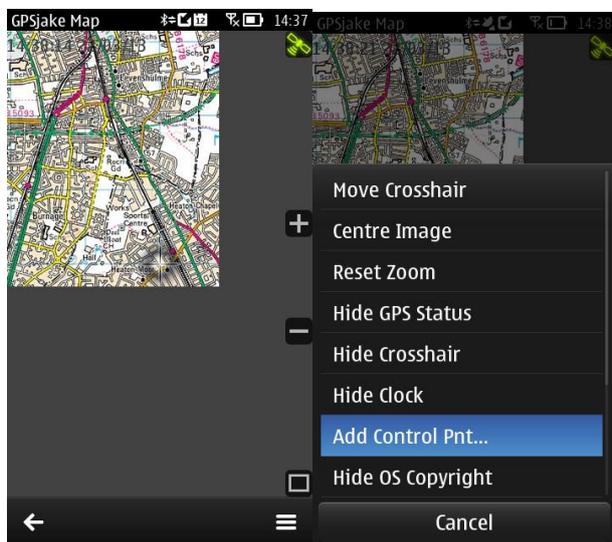
GEOREFERENCING A MAP

In order for the current GPS position to be shown on the map image the map image must be spatially referenced. This is done by adding control points to the map image.

A control point is a place on the image with known OS grid position. Intersections of OS grid lines make great control points. Control points must not share Eastings or Northings.
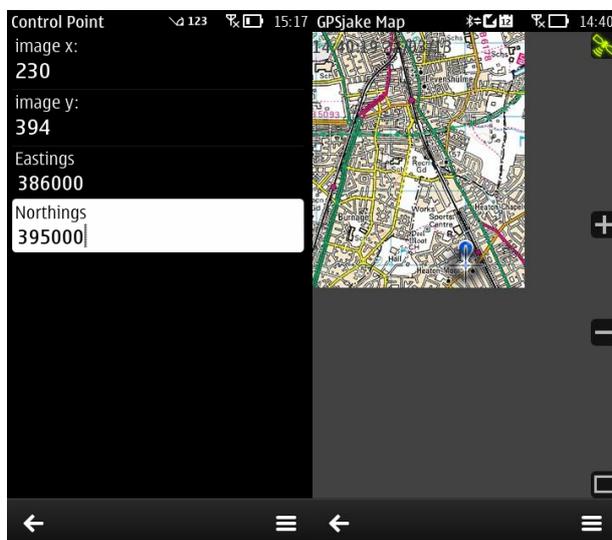
In order to add a control point to a map image, follow the steps below:

a. Move the crosshair over the desired point such as the grid line intersection- to do this pan the image or put the map in 'move crosshair mode' to move just the crosshair. Show the Map context menu by long pressing on the map.

Map Context Menu->Add Control Pnt…

c. Enter the Eastings and Northings of the point. Alternatively a point can be added by occupying the point in the real world and selecting "Read GPS" from the menu on the bottom right.

d. A minimum of 2 points is required to spatially reference the map image. Once enough control points have been added the map will be referenced and, if a GPS fix has been established, the GPS position will be shown on the map.

Control points are displayed using the following symbol:

At any time the list of control points can be edited.

Map Context Menu ->Edit Control Pnts…

A list of control points will be displayed. By selecting a control point its' details will be shown. From the menu screen on the bottom right the control point can then be deleted or displayed.
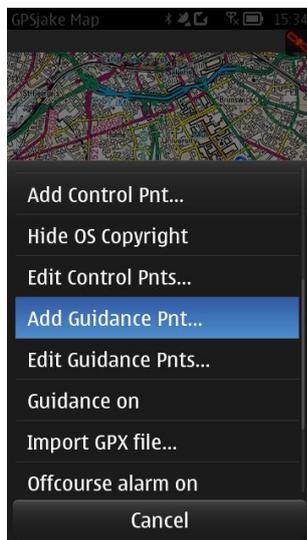
ADDING GUIDANCE POINTS

A guidance point is a way point which triggers a sound file to be played when the point is being approached. The following sound files are pre-recorded and can be selected: TurnLeft, TurnRight. BearLeft, BearRight and StraightAhead. Alternatively a custom recording can be made to give more specific instruction e.g. "turn left at the church onto the A123".
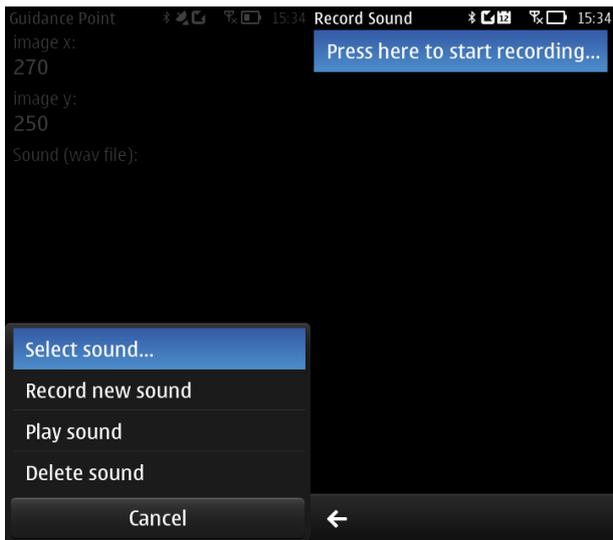
In order to add a guidance point to a map image, follow the steps below:

a. Move the crosshair over the desired point such as the point along the road at which to make a manoeuvre- to do this pan the image or put the map in 'move crosshair mode' to move just the crosshair.
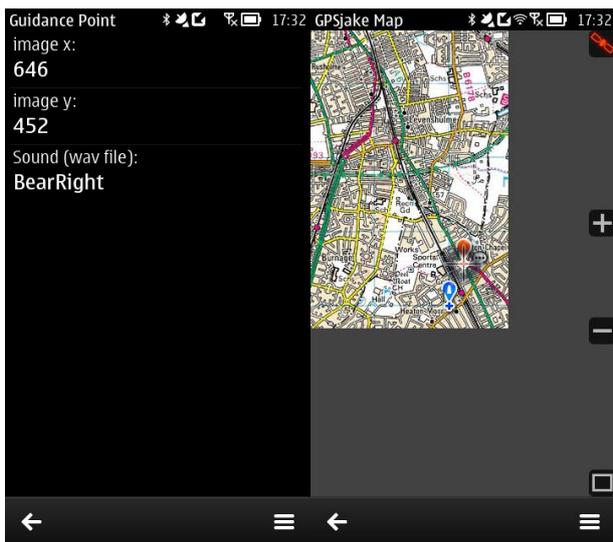
Map Context Menu ->Add Guidance Pnt…

b. Choose "Select sound…" from the menu to pick the guidance to be played. The list of sounds contains pre-recorded instructions and any WAV files in the directory where the map image resides. These can also be selected for guidance.

c. A new instruction can be customer recorded by selecting "Record new sound". In the following screen, select "Press here to start recording…" to begin recording. Once finished press the back button. Options will then appear to play and save the recorded sound. In order to use the recorded sound as guidance it must be saved as a WAV file. Once saved it will be displayed when the user chooses "Select sound…".
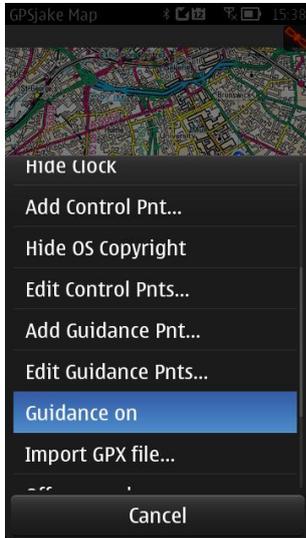

Map Context Menu ->Edit Guidance Pnts...

Guidance points are displayed using the following symbol:

At any time the list of guidance points can be edited.

TURNING GUIDANCE ON

Map Context Menu->Guidance on

In order to hear the guidance ensure that the phone is in the General profile and turn the guidance on via the map menu. The guidance can also be turned off via the Map Context menu.

GUIDANCE SETTINGS

Main Menu->Settings->Guidance

Through this menu the user can set the distances at which guidance is played.

Max. Guidance Dist. is the distance at which the guidance will start to be played.

Min. Guidance Dist. is the distance at which guidance will no longer be played.

Off Course Dist. is the distance from the loaded GPX point trail at which the off course alarm will sound.

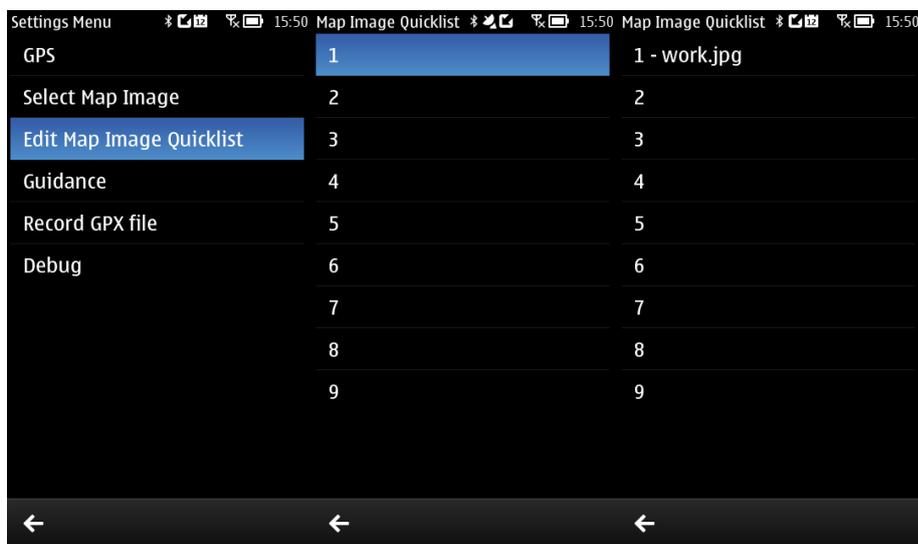Display GPX Pnt Dist. is the distance at which GPX points are displayed.

MAP IMAGE QUICKLIST

In order to quickly switch between various maps a "map image quicklist" can be created. The quicklist can be accessed from the Map Context menu allowing an alternative map to be displayed. This allows a user to easily switch to, say, an image of the neighbouring OS sheet.

To create a map image quicklist do the following:

Main Menu->Settings->Edit Map Image Quicklist

      a. Select the number in which to store the map. Using the file browser select the image to store against the number.

The map image quicklist can be called upon from the Map context menu when viewing a map:

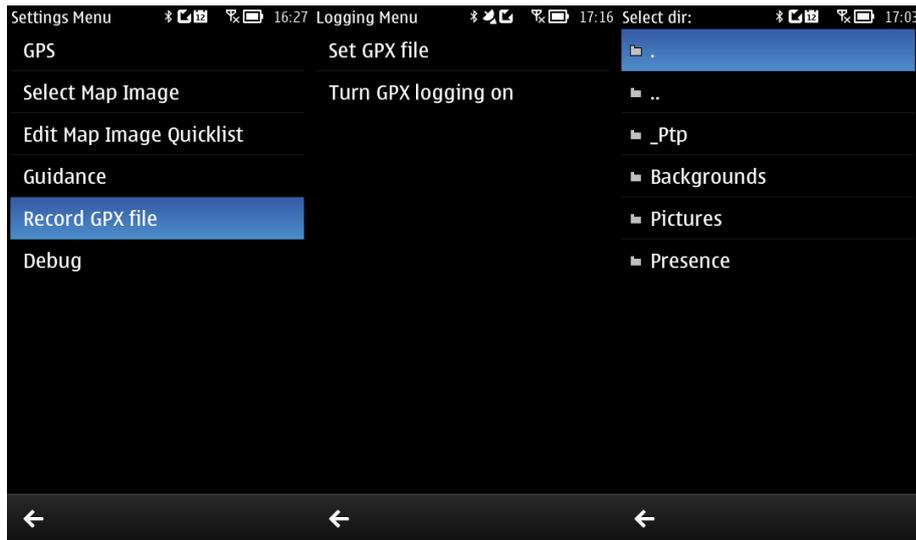*Map Context Menu->Map Image Quicklist*

      a. Select the map image from the quicklist to be displayed.

GPX FILE RECORDING

Main Menu->Settings->Record GPX file

To record a GPX file of the current route do the following:

a. Choose "Set GPX file". This displays a directory browser. The directory where the GPX file is to be created should be selected by browsing to the required directory and selecting ".". This means use the currently selected directory. The GPX file will be saved in a file using the current date and time.
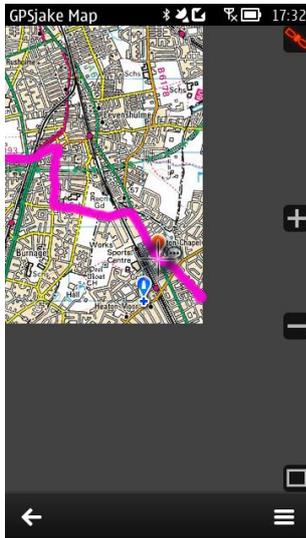

b. Turn GPX recording on by selecting "Turn GPX logging on".

GPX recording can be turned off through the same menu.

DISPLAYING A GPX FILE

Map Context Menu->Import GPX file...

To display a GPX trail on a map select the GPX file from the file browser.

The distance at which the GPX points are displayed can be set in "Main Menu->Settings->Guidance->Display GPX Pnt Dist."

OFF COURSE ALARM

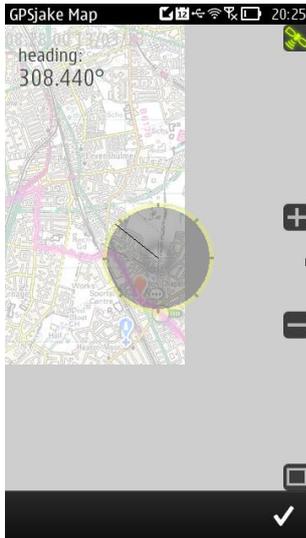*Map Context Menu->Off course alarm on*

The off course alarm will sound when the current GPS position is more than a specified distance (Main Menu->Settings->Guidance) from the GPX trail points.

The same menu item can be used to turn the alarm off.

COMPASS

Map Context Menu->Show Compass

The compass shows heading information. By swiping right to left and left to right other information is displayed – GPS (WGS84) position, OS grid position
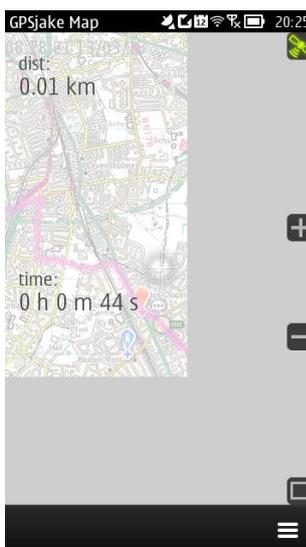

TRIP COMPUTER

Map Context Menu->Show Trip Computer

The trip computed allows the user to record trip stats. The screens of the trip computer can be changed by swiping right to left and left to right. The other screens show speed and height information.

The trip can be paused and reset using the menu in the bottom right of the screen.

LOGGING DEBUG INFORMATION

Main Menu->Settings->Set debug file

To record a debug file containing information about problems that have occurred whilst GPSJake has been running do the following:

a. Choose "Set debug file". This displays a directory browser. The directory where the debug file is to be created should be selected by browsing to the required directory and selecting ".". This means use the currently selected directory.
b. Turn debug logging on by selecting "Turn debug logging on".

Debug logging can be turned off through the same menu.

RECORDING AN NMEA FILE

Main Menu->Settings->Set NMEA file

To record a NMEA file containing GPS information represented as NMEA strings do the following:

a. Choose "Set NMEA file". This displays a directory browser. The directory where the NMEA file is to be created should be selected by browsing to the required directory and selecting ".". This means use the currently selected directory.
b. Turn NMEA logging on by selecting "Turn NMEA logging on".

NMEA logging can be turned off through the same menu.