ERadarCompasGPS

Terms and definitions

Application – a software product named «ERadarCompasGPS».

GPS navigation device – either built-in or external device that receives current geographic coordinates of mobile device location and calculates other geodesic data.

Purpose of Application

Application has a purpose to guide its user in a surrounding area by the means of defining geographical coordinates combined with calculating directions based on cardinal points. It allows user to set a destination point which should be reached.

Application is not intended to substitute different software products that provide a based-on-the-map navigation. Developers targeted to create the simplest tool for mobile platforms, allowing mobile device's users to reach pre-defined point. Application is designed for use on an unknown terrain when maps are not available. For instance, mushroom pickers using this Application won't get lost in the forest and will return to the given point, i.e. a country house; or travelers in a strange city will save a starting point of the route and so they will always be able to return. It will also be much easier to find your car on a huge supermarket parking with the help of this Application.

The use of Application is not limited in time or space. It is that simple: you just save a starting point of the route, then go everywhere you'd like to, and after you decide that it's about time to return – then just select your saved point and follow locator indications which will lead you directly to that point (though it'll be up to you to choose a best route).

This Application does not provide route tracking. Navigation is based on azimuth which creates a straight line from current location to destination point.

System requirements

Platform: mobile devices.
GPS-receiver: necessary.
Processor type: any.
Free memory: 200 Kb.
Operating system: Android 1.6 or higher.

User interface

User interface may vary on different platforms.

The main form is shown below:

The screen is divided into several areas:
- control panel;
- route radar;
- destination point summary.

Control panel

Control button	Description

	Activates / deactivates a GPS-receiver. It also displays receiver status:
	  - receiver is active (data from a GPS-receiver is transmitted);
	  - receiver is active, search of satellites in progress (positioning is impossible);
	  - a communication error with a GPS-receiver;
	  - receiver is disabled.

	List of destination points. Starts / stops display of the destination point.
	Sends SMS with the coordinates of your mobile device's current position.
	Starts / stops the timer.
	Settings.
	Exit.
	About.

Destination point summary

This screen area displays geographic coordinates of the destination point combined with the distance between your mobile device's current position and the destination point.

Coordinates are represented in the following format:

Latitude: H dd˚ mm' ss.ms"

H – hemisphere (N – northern hemisphere; S – southern hemisphere);

dd – degrees;

mm – minutes;

ss – seconds;

ms – part of a second (two decimal points).

Longitude: V dd˚ mm' ss.ms"

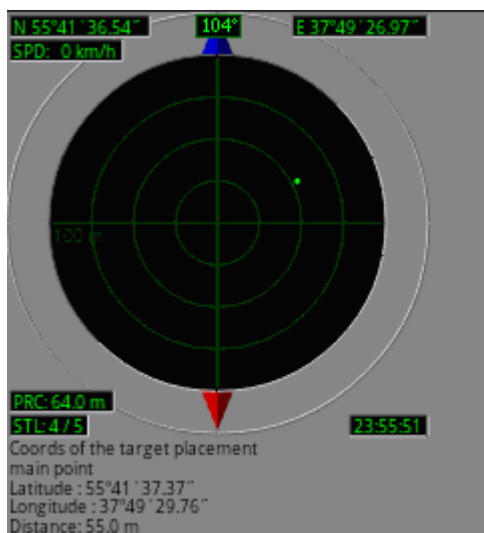V – hemisphere (E – eastern hemisphere; W – western hemisphere);

dd – degrees;

mm – minutes;

ss – seconds;

ms – part of a second (two decimal points).

Route radar

Radar provides a graphical display of the destination point relative to current movement directions. Radar indicates the direction to the geographic North Pole (acts as a Compass), and also reflects current coordinates and status of the device.

Comment. *In case a mobile device is not equipped with a built-in Compass, establishing a sustainable direction to the geographic North Pole is only possible during the movement.*

Field	Description
N56°11'37.53"	Geographic latitude of your current location.
E38°31'29.35"	Geographic longitude of your current location.
104°	Azimuth. The direction of motion relative to the direction to the North (relative to the meridian).
STL:4/5	The number of navigation satellites, according to which the coordinates are determined, as well as the number of visible satellites.
PRC:64.0 m	The quality (accuracy) of the positioning. It is possible to trust the program's estimation of your location only in case the quality of location determining does not exceed 32 m.
SPD: 0 km/h	The speed of movement.
1000м	Reflects the scale of the window tracking a destination point. Specifies the distance in meters to the extreme point of following window from the center of the window.

Comment. *The maximum error in coordinates determining provided by the highest positioning quality is 16 meters. During series of tests on various devices, the average deviation from the reference points has shown not to exceed 3 to 6 meters.*

Settings
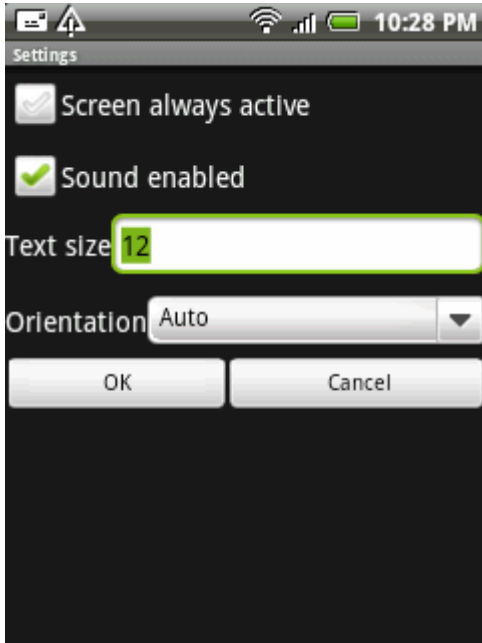
If an option «Screen always active» is selected, it will not allow an operating system to turn the screen off and put a mobile device in a standby mode.
Warning. *However, using this option may lead to a quicker discharging of a mobile device battery.*

An option «Sound enabled» enables/disables using of sound in the program.

An option «Text size» installs the font size to display information on the main screen. User can choose the optimal font which is suitable for a screen resolution of his mobile device.

An option «Orientation» allows user to specify the layout of elements on the main screen, depending on the orientation of the device's screen.

An option «Use if need cell tower coords» allows to calculate current coordinates of mobile device using the coordinates of the nearest cell towers.
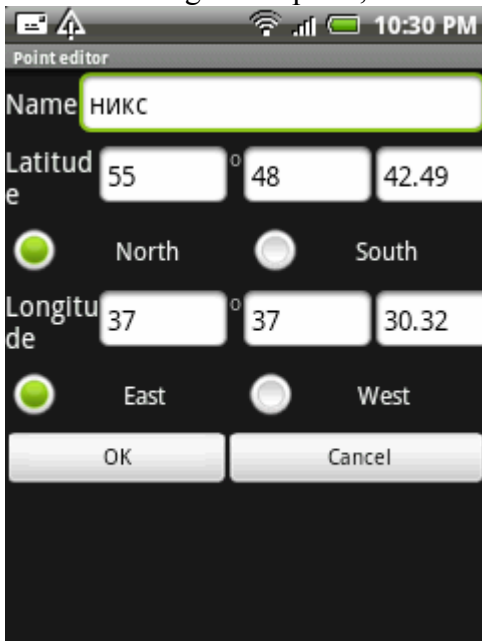**Warning!** *To calculate current coordinates it needs the connection to Internet.*

List of destination points

The program supports a storage of a large number of destination points:
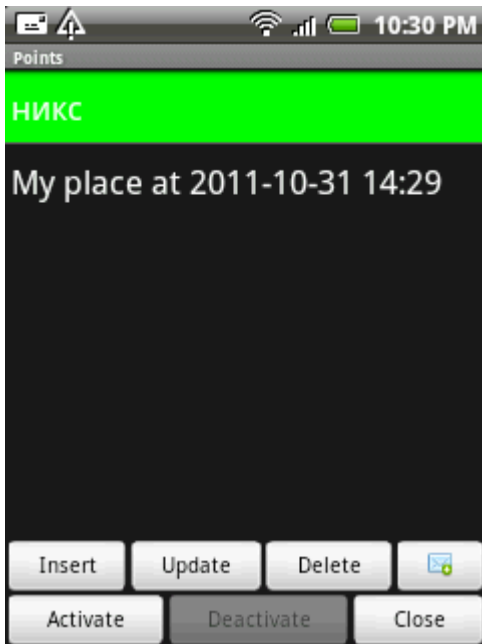
When inserting a new point, the form will automatically be filled in with the current location coordinates:


In order to begin movement to the destination point listed, you should select the desired point and press the screen button «Activate». List of destination points will be closed and the program will go into the routing mode and lead you to the point selected.

Comment. Active point is not associated with any of the points in the list. Therefore, in the event of a change in coordinates of the previously entered destination point, it is necessary to update the coordinates of the movement by pressing the screen button «Activate».

To add to the point list a point that was sent via SMS, click on the button . The program will scan all incoming SMS-messages. If a message contains data in the coordinates exchange protocol, the message will be decrypted and a new point will be added to the list.

Sending current position

The program transmits the current position the mobile device via SMS to other mobile device.
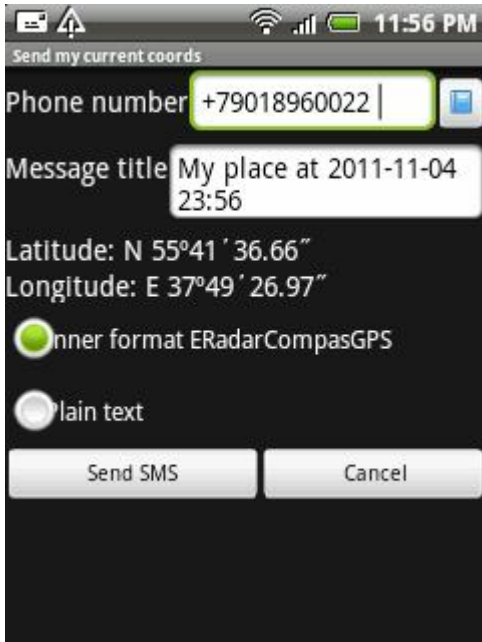
For successful transmission of information it is necessary to provide a telephone number you want to send an SMS-message (number can be entered manually or selected from an address book).

Optionally, a point description can be provided.

If the coordinates are transmitted to the mobile device with the installed version of this Application, it is recommended to choose an inner format of data transmission. Otherwise, the data can be sent as a plain text messages which is suitable for reading.

Timer

The program has a function of the countdown timer:
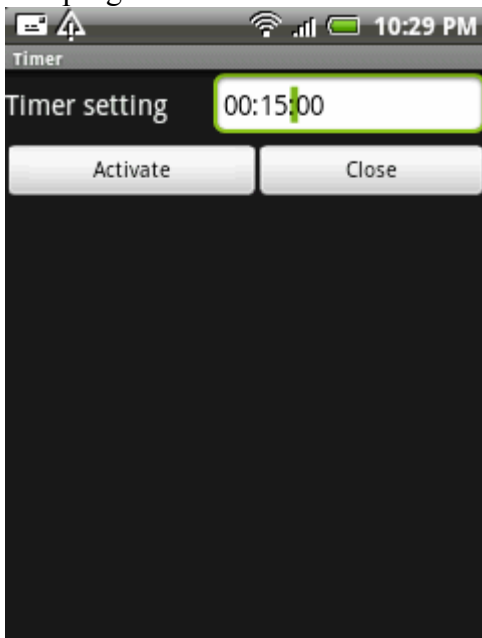
Other information

The number of visible satellites in the sky is constantly changing. The GPS module analyzes information about the presence of available satellites. When a new satellite is included in the calculation to determine current coordinates of the mobile device, Application may freeze up to 15 seconds.

For a successful operation of the device, make sure that the GPS-module is installed (or plugged) in the device and that it is active:
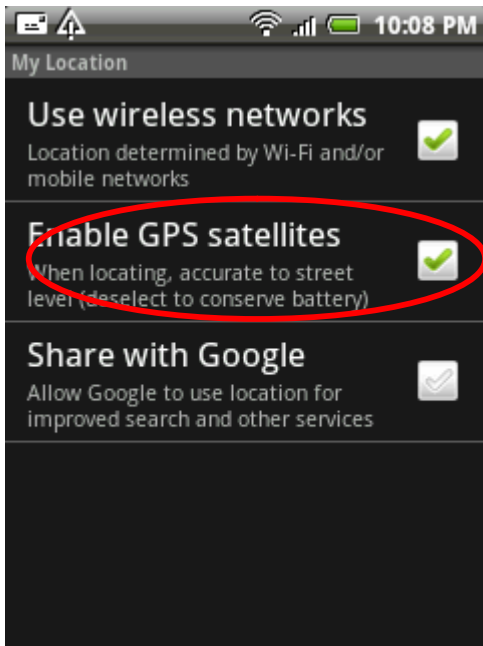
In case if any navigation software was not used on the mobile device for a long time, a preparation of a GPS-module to work may take up to 20 minutes. In order to reduce this time, an operating system can use Internet to determine the current position of navigation satellites. Internet access via Wi-Fi or a mobile network (GPRS, EDGE, HSDPA) must be allowed in the device settings:
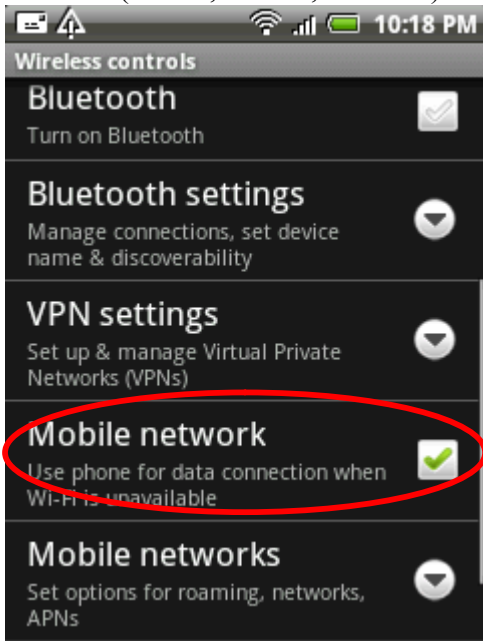
Warning. *If the device is not in your home network, the price of data transmission over Internet can be very significant. Therefore, a permission to use cellular networks for data transmission should be given with all due caution.*

Contacts

Any questions and suggestions concerning ERadarCompasGPS application may be sent to the following e-mail: eCompasgps@yandex.ru

Latest updates and additional info are available at our website: http://eCompasgps.narod.ru/