

Police Checkpoint Alert

User Manual

Version 2.3.1

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20/08/2011

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General Idea of the PCA Application

Police Checkpoint Alert (PCA) is an application for mobile devices that enables registered users to mark the locations of police checkpoints and receive alerts about the other checkpoints that are within the radius (i.e. distance) of their interest, while driving.

PCA is made to be simple for use and nondistractive for the driver. To make an alert on the police checkpoint that was passed by, a driving user presses a single button on the application screen. Using the GPS features of the user's mobile devices, the information on the location of the just-spotted checkpoint is sent over the wireless network to a database of all such alerts and immediately made available to all users who are sufficiently close to that checkpoint, depending on the individual settings every PCA user can set for himself.

Every user can set one radius (with respect to user's actual position) within which the alerts will be displayed on the phone screen, and another – smaller – radius within which the app will warn a user by a sound alert (that can be muted and unmuted at any time at user's discretion). That way, a user is relieved of monitoring the phone screen during the driving and will not miss any warning that is of the user's practical interest.

Besides those radii, every user can set how frequently the GPS of his mobile device will update its position and how frequently the list of pertinent alerts will be downloaded from the database.

PCA is time-zone independent which makes it usable in any geographical area.

Requirements and Limitations

To have a full and best functionality, user's phone must be equipped with a GPS receiver and a working data connection (for two-way communication with the database in real-time).

The app is primarily made for touch-screen phones and nontouch phones users may experience difficulties with user interfaces.

Current version of the application: 2.3.1

After multiple improvements to the initial version PCA 1.0, the current version of PCA is 2.3.1.

Application Features and Means of Usage

Login window

After PCA is launched, the login-window, as shown in Fig. 1, is displayed on the screen. It can be used threefold:

- to create a new user account – for new users
- to log in with existing username and password – for returning users⁴
- to set a new password – in case of a forgotten password, a simple procedure is offered to quickly set a new password

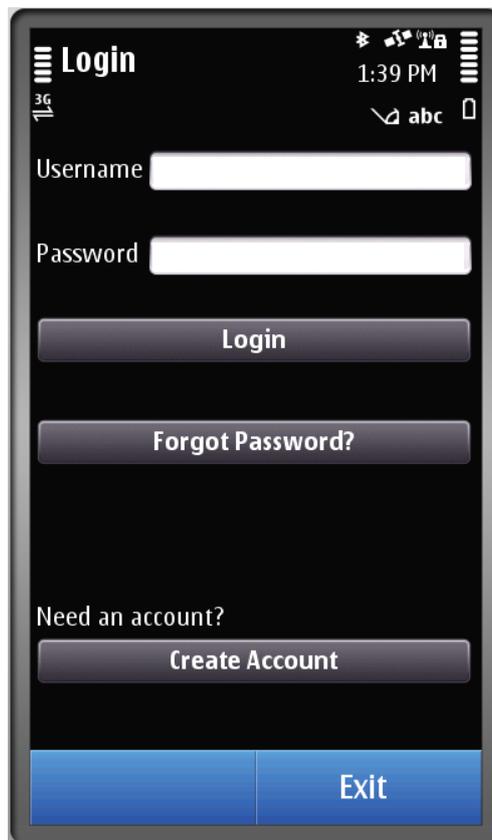


Fig. 1 PCA login window

The username and password are not case sensitive in Symbian application (the *password* field is case sensitive in the Android-based PCA).

To log into the application after filling in the *username* and *password* fields, the user has to click on the *Login* key.

Likewise, to create a new account, a user needs to click on the *Create Account* button and a new dialog window will open that enables user to define his username and password.

If a user had forgotten his password, he can easily set a new one after clicking on the *Forgot Password?* button, after which he is requested to enter his username and a *new* password.

There is also an *Exit* key on the bottom of the screen, for the purpose of closing the application. To prevent accidental clicks on the *Exit* key, a confirmation window (Fig. 2) will be opened after clicking on the *Exit* key, asking a user if he is sure he wants to exit the application and asking for a confirmation by pressing a *Yes* or *No* keys that are offered in the dialog window.



Fig. 2 Confirmation window

Account creation window

The *Create Account* window, shown in Fig. 3, is opened after a user clicks on the *Create Account* button of the login window. The user has to fill out the two fields with character strings. The minimum length of these strings is one character. After clicking on the *Register* button, a new user account will be successfully created if the desired username does not already exist in the database (i.e. PCA checks the usernames already existing in the database). If the desired username already exists in the database, the message will appear on the screen requiring the user to propose some other username and the process is repeated until a unique username is selected.

After an account creation, the user is automatically logged in and the application opens the main window.

At the bottom of the *Create Account* screen, there is also a *Back* button, which allows user to go back to the login window. The *Exit* button can still be found under the *Options* menu, which can be activated by pressing the *Options* key in the bottom left corner of the screen.

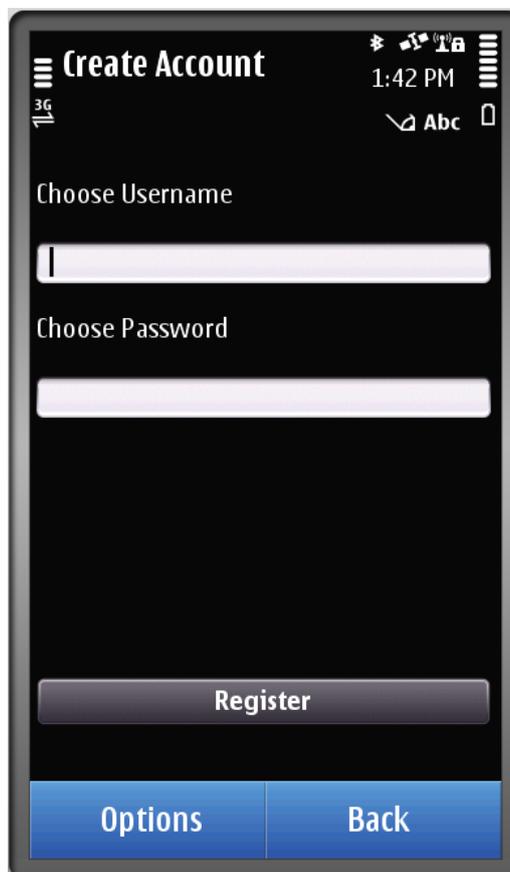


Fig. 3 Account creation window

Password resetting window

The user interface for the *Password resetting* action is similar to the *Account creation* window. The user first fills in the first field (Fig. 4) with the *username* of the already existing account whose password has to be re-set, and then chooses a new password filling out the second field (minimum one character). Clicking on the *Set New Password* button a new password will be applied to the account of interest and a user taken to login window. Note that the password does not have to be unique since the username is enforced to be unique.

This way of re-setting the password was chosen to be fast and easy for the user, imagining that the user is ready to drive and realizes he/she has forgotten his/her password. Some of the typical ways to recover the password would require a user to type in an additional account information (such as email address or a phone number) to uniquely identify himself, before being allowed to set a new password. Although more secure, this way was thought to be fairly slower and, therefore, discouraging for the users to use it. Certainly, this is something that can be implemented in the future.

As in the *Create Account* window, the user can also use the *Back* button to go back to the login window or quit the application by clicking on the *Exit* button under the *Options* menu.



Fig. 4 Password resetting window

Main window

The main window, appearance of which is illustrated in Fig. 5, comprises the following components:

- a display where the alerts are listed based on the user preferences;
- *Warn users* button which serves the user to to publish an alert by a single click of the button;
- a mute/unmute button (with the speaker-like image) that can be used at user's discretion to turn the sound alert off or on.

In the bottom of the screen are the *Settings* and *Exit* button, as they are the most likely buttons the user could need in this context. Speaking in general, the bottom keys are always placed having in mind the most likely operations the user can require in a certain context and to reduce the necessary number of clicks the user needs to reach desired functions.



Fig. 5 Main window

Settings window

The *Settings* window enables adjustment of values of the application parameters. The first parameter is *Radius for alerts to be displayed* which sets the distance, in meters, from user's actual position, within which the alerts will be downloaded from the database and displayed on user's device within the *PCA Main* window. The value of this parameter can be set in three ways: using the slider (on the left side), or by using the up- and down- arrows (on the right) which have a step of 100 m, or by tapping into the digital display and typing the desired radius directly. The arrow controls are synchronized with the digital display.

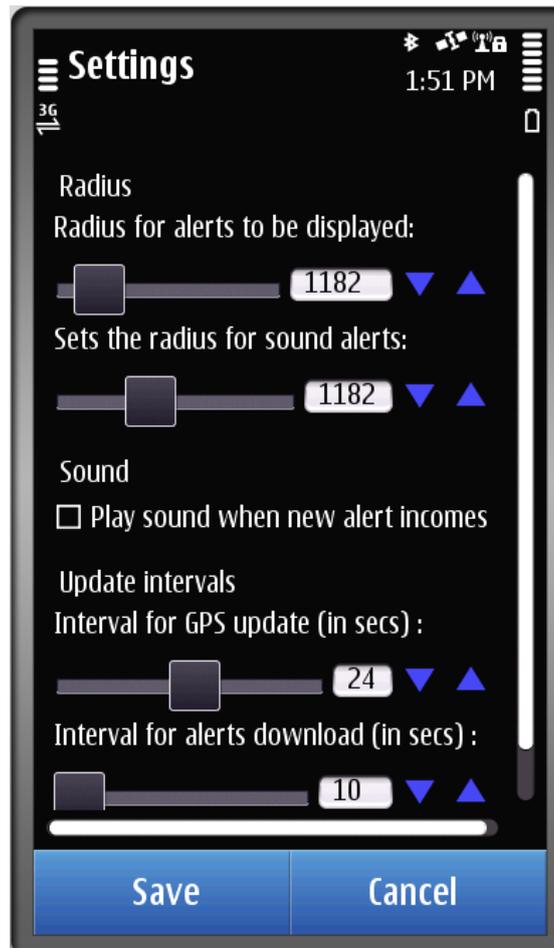


Fig. 6 Settings window

The second parameter *Sets the radius for sound alerts*. By this value, the PCA user sets the radius within which the sound alert will warn user if there is any alert (that is already displayed on the screen) within that distance. Again, the value can be set by either of the three controls: the slider, the digital display, or the up- and down- arrows.

These two parameters can essentially be illustrated by the following schematic (Fig. 7). If R_1 denotes the radius for sound alerts and R_2 the radius for alerts to be displayed, the following rules apply:

- $R > R_2$: alerts satisfying this are not listed
- $R_1 < R < R_2$: alerts are displayed in the PCA Main window, but the sound alert is still off
- $R < R_1$: the sound goes off to audably warn the user on the proximity of some checkpoints.

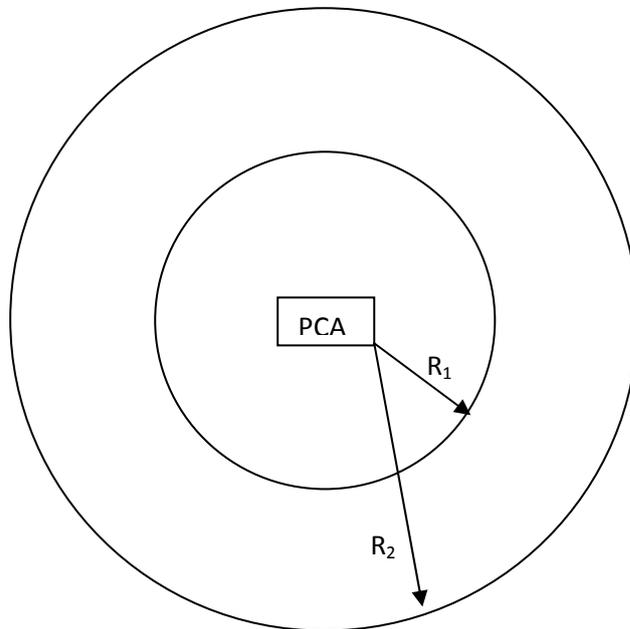


Fig. 7 The graphical interpretation of the two radii

Following these radii, a PCA user can set the sound alerts to be muted by default. At the end, the two parameters set the frequency of the data update. The *Interval for GPS update (in secs)* sets every how many seconds the user's location will be updated by reading the GPS receiver. The last parameter – *Interval for alerts download (in secs)* – sets every how many seconds the database will be read and the list of pertinent alerts compiled and displayed in the PCA Main window.

Contact Information

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