



BAO Parking Infractions

Android application to create & manage parking tickets and exceptions
for Base Area Operations at Whistler Blackcomb

by Owen Roberts

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Overview

The BAO Parking Infractions Android app (referred to hereon as 'the app') is a tool intended to be used by BAO employees when working in the Roads & Parking division. One Android device, owned & managed by Base Area Operations leadership, will run the app. The device will be returned daily to the Base Area Operations office.

The app will manage the ticketing aspect of the parking lots. Tickets can be created, managed and removed in the app. Exceptions, for example when a Snowmaker can park overnight, can also be created & removed to prevent authorised vehicles without visible permits from being ticketed. Additional protected admin functionality exists for the Leadership team to perform tasks not permitted by the user. Full demonstrations of the functionality can be found in the demo video linked in the 'Media' section.

Problems with the current process

The app aims to resolve some issues found by members of the BAO team, including myself, with the current process.

At present, the BAO team have no visibility of past offences for vehicles, as the data exists in a spreadsheet on an office PC which is all manually entered by a member of the BAO Leadership team. This makes following the 2-strike warning, and then tow, process dictated by the tickets impossible to enforce in the field. It also provides the employee with no evidence of past offences if a vehicle owner denies past offences. The app would provide solutions for these commonly faced issues.

The app would also aim to mitigate the human error aspect of data entry into a spreadsheet, as each field is validated before a ticket/exception can be added.

User functions

'User' refers to a Base Area Operations employee.

- Creating tickets
- Viewing tickets and exceptions

Admin functions

'Admin' refers to a member of the Base Area Operations Leadership team.

All user functions, plus:

- Creating exceptions
- Editing/deleting tickets/exceptions
- Viewing deletion history
- Backing up the database

Technical breakdown

One, nonshared SQLite database running locally on the one device (see 'Overview')

Images are stored as byte arrays in the database

Database is backed up manually within the app itself, behind a password prompt. Backup process involves the database being copied from the *app/data/databases* folder to a backup folder (*default external storage directory*)/*bao_backups* which will be created if it doesn't exist. From this, another app (Dropsync), will perform background syncs of the database from the */bao_backups* folder to a BAO DropBox account every 30 mins.

The app is a native Android app with no cross-platform support

Any assets are either created by me or from the Material Design resources**

Android minimum SDK version: 21 (Android 5.0)

No third-party libraries in use in the app

*[https://developer.android.com/reference/android/os/Environment#getExternalStorageDirectory\(\)](https://developer.android.com/reference/android/os/Environment#getExternalStorageDirectory())

**<https://material.io/resources/icons>

Media



BAO Parking Infractions

Enter a licence plate

- KH 4665** BC (British Columbia)
 - Lot 6 Fire Lane
 - 10:14 02/29/2020
- FK2 08F** BC (British Columbia)
 - Lot 6 Overnight
 - 10:00 02/29/2020
- HJ2 14K** BC (British Columbia)
 - Creekside Overnight
 - 09:38 02/27/2020
- KA1 17H** BC (British Columbia)
 - Creekside Overnight
 - 09:34 02/27/2020
- JT9 40S** BC (British Columbia)
 - Lot 6 Overnight
 - 06:49 02/27/2020
- HV6 97B** BC (British Columbia)
 - Lot 6 Overnight
 - 06:47 02/27/2020
- JL5 81L** BC (British Columbia)
 - Lot 6 Overnight
 - 06:45 02/27/2020

Ticket Details

HJ2 14K BC (British Columbia)
 Overnight
 Lot 7
 repeat offender from Creekside
 Vehicle towed?

Date/Time: 10:26 02/29/2020

New Ticket

Licence Plate

Select State/Province

Select Infraction Type

Select Location

Notes (optional)

Vehicle towed?


CAPTURE VEHICLE **CAPTURE TICKET**

No image provided No image provided

Date/Time: 17:24 02/29/2020

Exception Details

HE6S 9W AB (Alberta)
 Overnight
 Lot 6
 snowmaker overnight - TEST
 Vehicle towed?



Date/Time: 15:03 02/18/2020

Deletion Log


- HJ2 14K** BC (British Columbia)
 - Creekside Overnight
 - Creation time: 05:13 02/29/2020
 - Deletion time: 05:14 02/29/2020
- TESTED 1** AB (Alberta)
 - Lot 6 Overnight
 - Creation time: 13:32 02/23/2020
 - Deletion time: 10:36 02/27/2020
- TESHV7 98** NS (Nova Scotia)
 - Springs Loop Commercial Loading Zone
 - Creation time: 15:10 02/18/2020
 - Deletion time: 10:35 02/27/2020
- KF5 38D** BC (British Columbia)
 - Lot 7 Overnight
 - Creation time: 13:31 02/23/2020
 - Deletion time: 13:33 02/23/2020
- TFHCJB** BC (British Columbia)
 - Lot 7 No Pass/Permit
 - Creation time: 19:06 02/18/2020
 - Deletion time: 19:06 02/18/2020
- HWH** WA (Washington)
 - Lot 4 Overnight
 - Creation time: 19:05 02/18/2020
 - Deletion time: 19:06 02/18/2020

BAO Parking Infractions

Guidelines

- Be sure to enter the licence exactly as it is displayed on the vehicle - including any punctuation (spaces, dashes, apostrophes, etc)
- Check the history of the licence prior to adding a ticket - use the search feature to do this
- Where required, add additional ticket information in the notes field, e.g. when the infraction type is not in the pre-populated list of options.

Example:



Would be entered as: DE3 10T

Admin Operations

SHOW DELETION HISTORY

BACKUP DATABASE

Base Area Ops Contact

Office: (604) 938 7242
 Cell: (604) 938 3994
 Email: wbbaseareaopsreq@vailresorts.com

Demo video: <https://vimeo.com/393341348>

Contact details

Contact 1: Owen Roberts (The developer of the app)

Roberts.7@icloud.com

(236)-979-1278

Contact 2: Andrew Spark (Assistant Manager, Base Area Operations)

aspark@vailresorts.com

604-938-3994

Disclaimer

The app is still being worked on as new requirements arise. Noting this however, the core functionality will remain true to the brief provided in the 'Overview'.