E-Brevet

Summary

- This is a proposal, with a working prototype. Full adoption would require considerable testing and some further development
- E-Brevet is a smartphone-based alternative to the paper Brevet card, which can be used for advisory route Calendar and Permanent routes
- It logs the time at each control, having checked (via the phone's GPS) that the location (latitude and longitude) is as specified by the organiser
- The completed brevet is uploaded to a web server hosted on the organiser's computer, allowing rapid recording and validation of finishers

Benefits

- Avoids having to get a receipt, at locations where this may be difficult
- Eliminates need for info controls
- Faster processing at the depart/arrivee (uploading and validating complete GPS tracks is too complicated for rapid processing)
- Help perception of AUK as an up to date organisation

Walk-through – Calendar Events

Organiser requirements

- A computer (Windows or Mac are OK)
- E-brevet software – supplied on and run from a USB drive, no software need be installed on the organiser's computer
- If there is no Wi-Fi available at the depart / arrivee, a wireless switch, so that a local area network can be set up

Rider's requirements

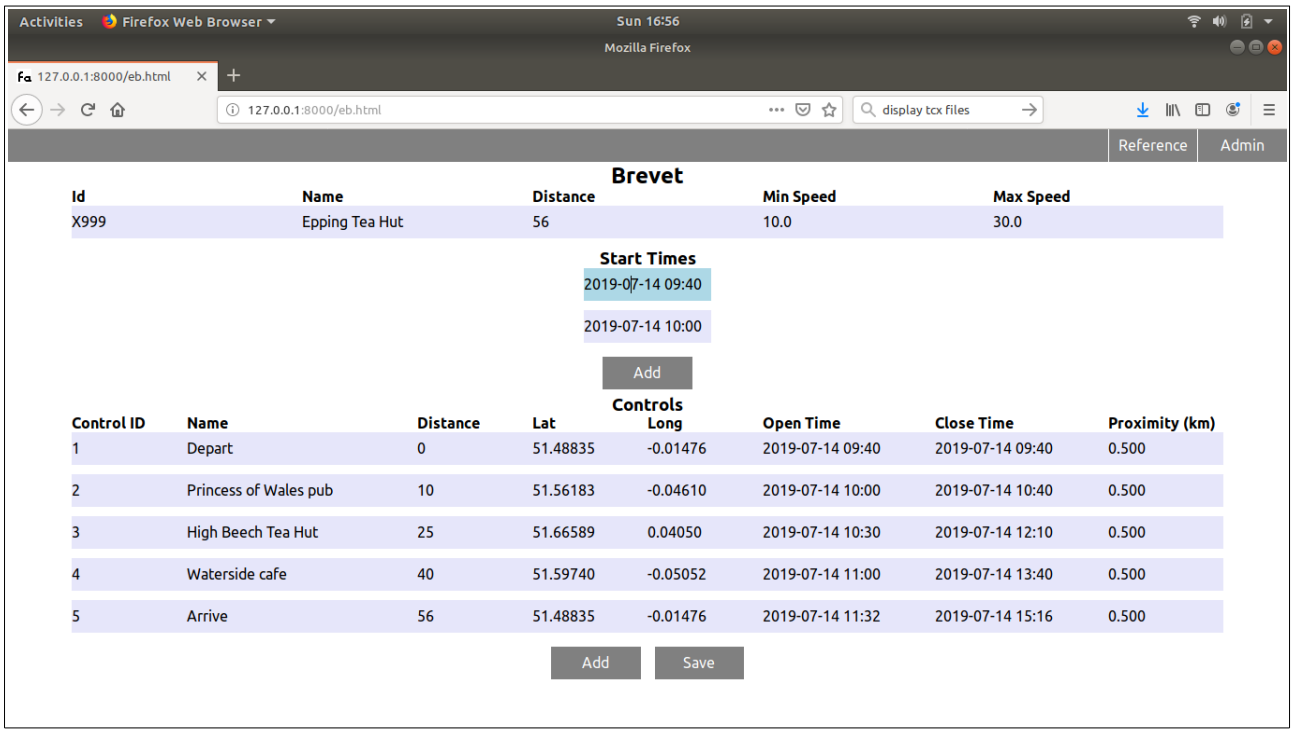
- A smartphone – current software has been written for Android only, from API level 15 (which means almost all Android phones should be able to access it). The app will be available from Google Play Store once finalised. The phone must be set with location services at "high accuracy", but can be run in air plane mode to minimise battery usage.

Organiser – set up a brevet

The organiser runs the ebrevetserver web application from the USB. This allows routes to be configured, distributes the route to riders, and collects completed ride details. It is accessed from a web browser – sample screens are shown on the following pages

Brevet Editing Screen

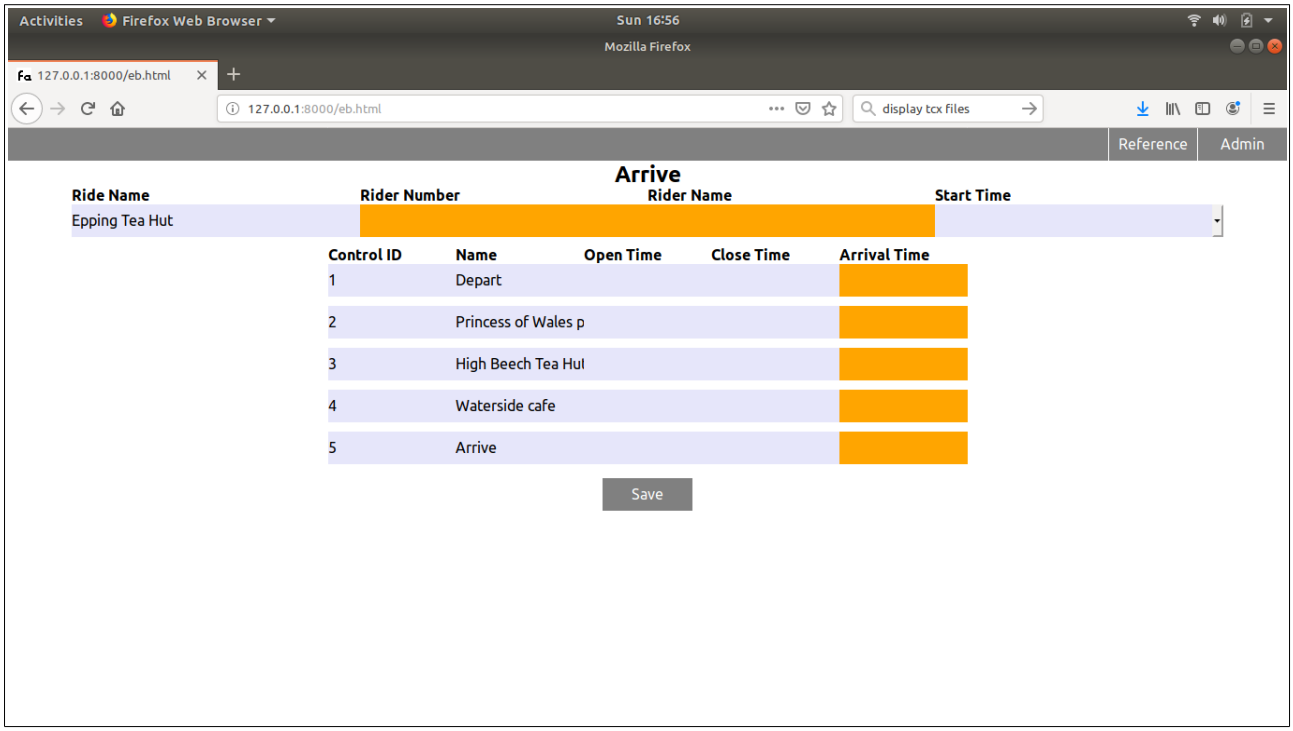
- Allows brevets to be added and edited
- Calendar brevets can have multiple start times – the rider selects which start time to use in the E-Brevet app.
- Start times are not shown or stored for permanent events[1] – the rider logs the start time from the app when he is ready to start.
- Control open and close times are calculated from the min and max speeds and the start time
- Proximity controls how close the rider must be to the specified latitude/longitude for the app to accept that he has arrived at the control.



1 The latest version of the application contains a selector for permanent or calendar on this screen

Arrival Screen

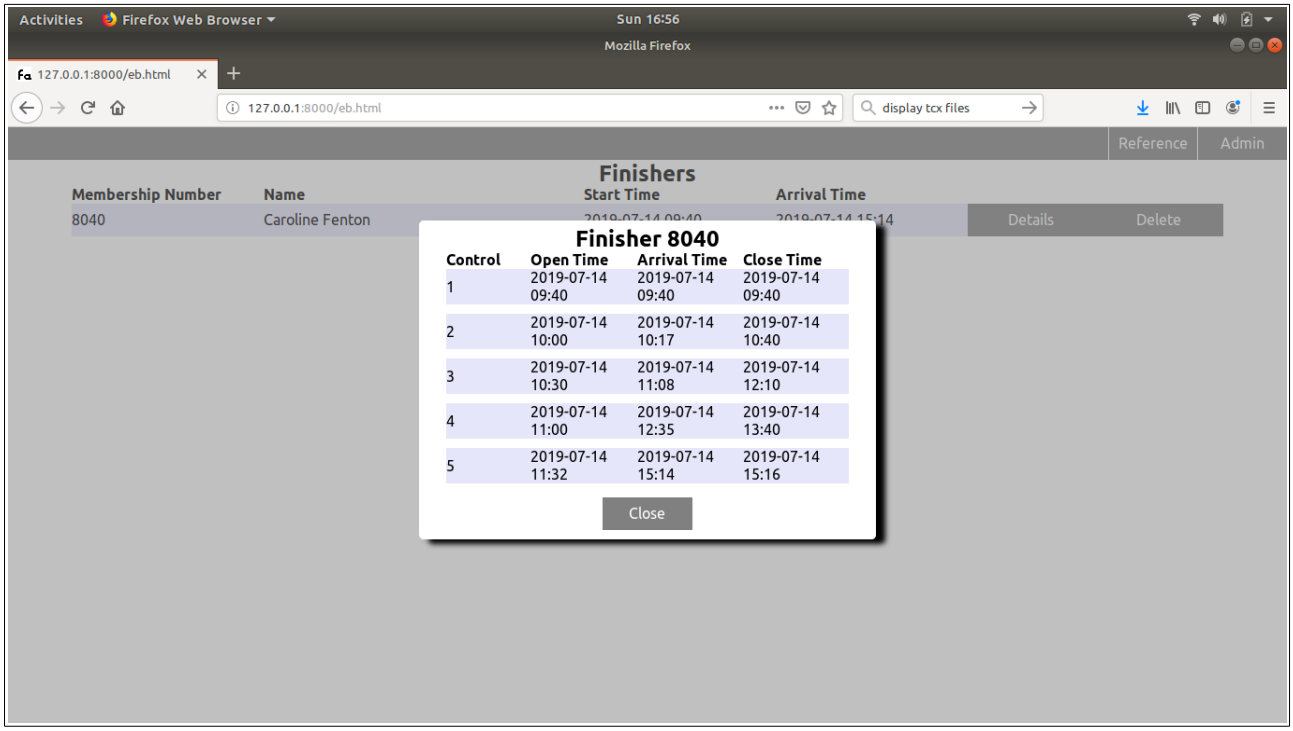
The organiser can manually enter details of arrivals if needed. This may be useful to allow a complete set of data to be gathered for upload to aukweb.



Finishers screen

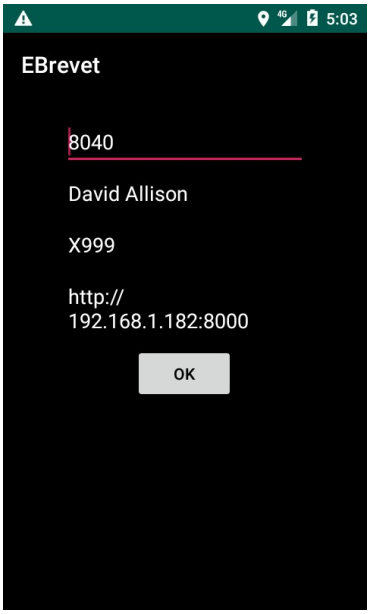
This shows uploaded brevets (and manually entered arrivals).

- Brevets that are invalid (incomplete or out of time at one or more controls) are shown in red
- The details button brings up a window showing each control open, close and arrival times
- The delete button deletes the record. A brevet cannot be edited if it has any finisher records, so this option is useful during testing, or if the brevet is to be re-used



Rider's view – Android App

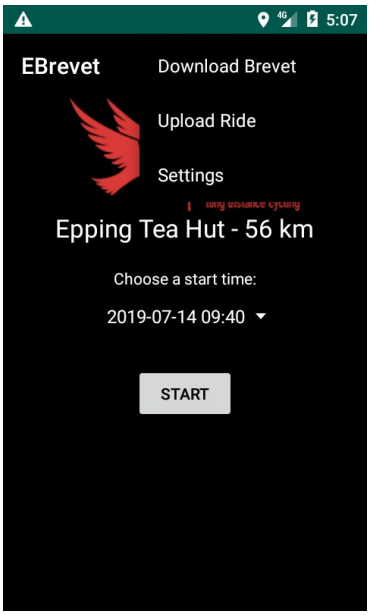
Set-up screen



There are some settings that need to be configured:

- Rider name (this is copied to the Brevet record once the rider starts)
- Rider membership number (this is copied to the Brevet record once the rider starts)
- Brevet code
- URL for organiser's web site

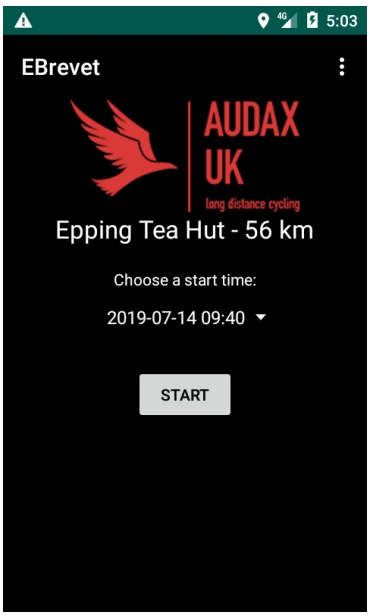
Menu screen



The menu offers:

- Download brevet – this resets the app to a new ride, and downloads the brevet details from the organiser's website
- Upload ride – uploads completed ride details to the organiser's website
- Settings – accesses the settings screen above

Ready to start



With the brevet loaded, the rider sees this screen

- For a calendar event, if there is a choice of start times, the rider must select one before starting. He cannot start until 10 minutes before the actual start time, and the start time will be record as the planned start time. The location will be checked
- For a permanent event, the start time is simply whenever t he start button is clicked, and is recorded as that time. The location will be checked

Started

Each control is shown as a numbered circle. The first control (the depart) is shown as green, because the start time has been recorded, and is within limits.

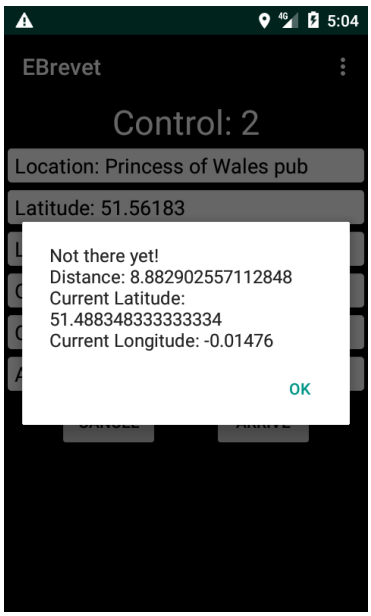
- A blue circle means the control has not been reached
- An amber circle means the control has been reached but too early or late
- A red circle means that the arrivee has been reached out of time (too early or late)

Arrival

When the rider is at the control, he clicks on the control number, and sees the following:

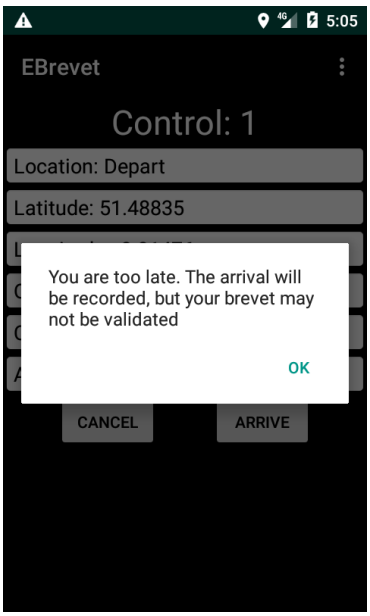
Not there yet

If the rider is not actually at the control:



Too late

If the rider is too late at a control (and similarly if too early) – a warning is given, but the arrival will be logged



Permanent Events

To allow Permanent Events to be recorded using E-Brevet, the following changes will be made:

A website would be set up on the internet allowing riders to download the brevet for a particular event.

- The website would allow (subject to the organiser permitting it), for the rider to customise the brevet by selecting the start control or reversing the route
- The ride start time would be when the rider presses the “start” button, and the control times would be adjusted to match
- The rider would upload the completed brevet to the central website on completion

Issues

Security

Is not arduous - we may want to consider security in more detail, but need to balance effort in securing the system against the ease of fabricating a paper-based brevet or gpx track.

- Because the organiser’s site will be run from a local web server, and a to-be-defined address, it operated over http not https (no SSL certificates, as these would not be trusted by the app)
- Steps have been taken to make spoofing the result (i.e. generating a dummy result and posting that to the website) difficult, by inclusion of a hashed key in the posted data, which is checked by the server. The algorithm for generating this key will not be published.

Phone Operating Systems

We would need to provide an iPhone version of the app if it was adopted