TacPath (2012-05-03)

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TacPath uses GPS data, generally available only outdoors, to compute distance travelled. It intermittently stores data points, or Crumbs, into memory, to keep track of where the user has been. In addition to plotting a path in a map view, the Crumbs are used as the basic increment for many of the various intermittent updates that the App performs during path travel.

STAT – Statistics View

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The Statistics View has four readout lines and three buttons. Each of the button actions are engaged by a double-tap finger input. The readout lines and buttons have the following functions:

Time of Day – The top line shows the time of day, in 12h or 24h format according to general device settings made outside of the App.

Elapsed Time – The second line shows the time elapsed since the start of path travel. When a path is paused or ended (Pause Path or End Path have been pressed), the elapsed time changes (jumps back) to the time of creation of the latest Crumb. If travel was paused, then when travel is again continued the displayed elapsed time will continue to increase.

Distance – The third line shows the distance travelled up to the latest Crumb, in units selected in the Settings View page (discussed later below).

Total Energy – The Total Energy readout, also on the third line, shows an estimate of the user's total metabolic energy expenditure, in Calories, up to the latest Crumb. The calculation is based on published standard data for Metabolic Equivalent of Task (MET) data, and in addition to path travel data, the computation uses input from the Settings View page (discussed later below). Tapping the Total Energy readout value briefly switches it to show the lower energy value that is associated with the activity alone, which is to say total energy minus resting energy, where resting energy is that estimated as "burned" when sitting quietly for the same length of time. (Note that if "Calories Off" is selected in the Settings View page, Total Energy is not displayed in the Statistics View.)

Average Speed – The bottom readout displays the average speed for the entire travelled path, up to the latest stored Crumb, in units set by the user in the Settings View.

Travel Path Button – Tapping this button, such that is becomes highlighted, erases all previous path Crumb data, and restarts travel recording and calculations. If path travel was just previously Paused, then tapping this button will continue the recording process from the latest saved path Crumb. (Tapping the button will have no effect if it is already highlighted.)

Pause Path Button – Tapping this button, such that it becomes highlighted, will temporarily stop the Crumb recording process. When Paused, the user can temporarily move to another location or stay in place for an extended time, and no path distance nor time will accumulate. The user should continue (tapping Path Travel) from approximately the same location where Path Pause was tapped.

End Path Button – Tapping this button, when travelling a path or when paused, will highlight the button and terminate the Crumb recording process, leaving the accumulated data in place. One should tap this button only when the entire path travel is complete, since tapping Path Travel button again, after a path has been Ended, will erase all path data and restart the recording process.

MAP – Map View
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The Map View contains a location display bar at the top of the page, a touch-controllable map in the middle area, and two main buttons at the bottom. The button actions are engaged by a single-tap finger input, and have the following functions:

TOPO/PHOTO – The left-side button toggles the map between topographic and photographic views.

Auto On/Off – The right-side button toggles the Auto Mode (automatic data display) on and off. When Auto Mode is On, the map continually re-centers and rescales to maintain the entire Crumb trail in view. When Auto Mode is Off, the map is free to be panned and rescaled by the user.

Each small circular marker on the map indicates the location of a Crumb. The large circular marker indicates the location of the latest location measurement. The coordinates of the latest location are displayed in the location bar at the top. (The coordinate units are selected in the Selection View page.) This latest location is not necessarily the location of the latest Crumb, since not all location measurements are stored as Crumbs.

When Auto Mode is Off the map may be panned, or dragged, using a single finger swipe. Double-tapping (with a single finger) will zoom-in on the tapped location. The In and Out buttons, superimposed in the top and bottom right corners of the map, will zoom in and out while maintaining the same map centre.

SET – Settings View
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The Settings View contains 5 selection toolbars and a button to send email. The top toolbar is used to select the location coordinate units displayed at the top of the Map View. The selections are decimal degrees (Degree), Degrees, Minutes & Seconds (DMS), Universal Transverse Mercator (UTM), and the Military Grid Reference System (MGRS).

The second toolbar allows selection of units for distance and speed (km & km/h, or miles & mph), the third for unit of user weight (kg or pounds), and the fourth allows adjustment of the numerical value of user weight in the selected unit. The user weight is used in conjunction with travel time and distance to compute estimates of metabolic energy use.

The last (fifth) toolbar allows selection of the type of activity, which affects how the metabolic energy use is computed. In addition to turning the energy computation off, the available selections are for walking, running, and bicycling.

Send Email – The single button at the bottom of the screen starts a process to send the current Crumb trail as an attachment in an email. When pressed, a second button appears for confirmation. Pressing the second button will prepare the Crumb trail as a KML file, and open a standard email client view for the user to select an email address to send to. The attached KML file is simply an (XML) text file with data formatted such that it can be easily opened in a KML viewing tool, such as Google Earth.