System Requirements Specification

I. Navigation
  A. New place
    i. The system shall allow users to search for place wither via name of location or by latitude and longitude (so other users can send them something like a Google Maps pin and they can paste in the information from the pin, note that the his sending of information is assumed to be one user helping another but the message itself is not sent in this application but with another, like Facebook messenger or texting.). This can also be a street address search.
    ii. The system shall display a list of possible matches to the user from a search.
    iii. The system shall navigate the user to the selected item in the list from a search.
  B. Recent
    i. The system shall keep a list of TBD length of recent places to ease navigating to a recently visited place. This list shall be displayed in a list below the search box when it is selected and the user has not yet typed anything.
  C. Cultural event
    i. The system shall notify users of nearby cultural events (method of notification TBD).
    ii. The system shall allow the user to select either the notification or select from a list of current cultural events (details and implementation and placement of list TBD) and set it as the destination and begin navigation.
  D. Health
    i. The system shall allow users to create a workout with the option to save it for repeat use.
    ii. The system shall allow the following options to be set for a workout:
      a) Distance traveled or Steps taken (mutually-exclusive and one or the other Must be set; Minimum distance: 100 Yards/Minimum steps: 100)
      b) Stairs climbed (optional)
      c) Elevation goal (optional)
      d) Type:
        • Circuit
        • "Out and back"
    iii. The system shall display progress towards each set goal.
    iv. The system shall preclude handicap accessible mode for health-routes in the initial release.
    v. The system shall not allow the user to create a route that is impossible with given information, notify the user that no such route can created with the given parameters, and then suggest a possible route.
      a) This was identified as necessary when the team contemplated what would happen if the user selected a minimum distance and then also selected a stairs climbed goal of 1000, for example. Another example thought of was what would happen if the user selected no stairs traveled, a minimum distance traveled, and an elevation goal (vertical distance traveled) of something even as low 50 yards might be impossible. To illustrate, a total distance traveled of 100 yards and vertical distance traveled of 100 yards requires the user to fly straight up 100 yards, and 50 yards would require the user to climb a 50% incline which is not available on the graph since none of the sidewalks on UVA-Wise campus have a 45-degree angle. This would be possible on stairs, but with a stairs traveled of zero it would not be possible.
    vi. The system shall track health-statistics (which statistics to track TBD) and display them to the user in variety of methods (methods TBD).

      vii.      The system shall allow users to delete saved workouts.
E. Overall
   i. The system shall show estimated time of arrival at destination (or completion of workout for the case of a health-route).
  ii. The system shall display distance remaining to goal and distance to next node to user during navigation and health-route guidance
 iii. The system shall notify users if they pass a node on the route and travel down an incorrect route.
 iv. The system shall re-route the user if the user travels far enough down an incorrect route that another route becomes the shorter.
  v. The system shall allow the user to enable the user to select handicap mode at any time during navigation (other than health-routes) and re-route the user accordingly.
 vi. The system shall use a shortest-path algorithm (meaning real-world distance; NOT least nodes) to navigate the user for every navigation mode except health-routes.
 vii.      The system shall allow the user to switch between AR and Non-AR navigation from the navigation screen at any time.

II. Settings
A. The system shall allow the user to save certain settings in a preferences page.
B. Defaults
   i. Cultural event
     a) The system shall allow the user to change whether the user wishes to be notified of cultural events on campus or not (original default: on).
  ii. General
     a) The system shall allow users to set their default mode as handicap accessible routing, but this setting will default to non-handicap.
     b) The system shall allow the user to select either AR navigation Non-AR navigation as the default
     c) The system shall allow the user to open in Navigation mode or Health-route mode by default when launching the application.
C. Saved places
   i. The system shall allow users to save a place as a "favorite" (actual name in application TBD) to allow for repeat navigation more easily.
  ii. The system shall allow users to delete saved places.