ARfrisbee Application Overview

**Basic Functions:**

* Utilize augmented reality to display maps
* Allow for Frisbee score tracking for solo or group players

**Implementation Requirements:**

* Have knowledge of the Swift programming language
* Use of Apple developer tools such as ARKit, GPS, etc.
* Apple Developer’s account
* Host application with hosting software
* Implement marketing techniques (done much later)

**Detailed application breakdown:**

1. First-time opening the application (pre-open)
   1. A splash-screen will appear with instructions for the user.
   2. User will be prompted to allow for location services to be used (while using the app, not in the background).
   3. User will be prompted to allow for the device camera to be used (for Augmented Reality).
2. Opening the application (pre-use)
   1. A loading process should be expected. This may take significant time on older phones.
   2. Game Center sign-in will happen in the background if available.
   3. If applicable, the user will be prompted to join their friends’ game.
   4. User will be prompted to calibrate display to allow their phone to find its surroundings. This involves moving the phone to allow the camera to see its surroundings.
3. Viewing the map (during use, part 1)
   1. The user’s camera will be used to display an image of their surroundings.
   2. Where Frisbee holes are located, user’s will be able to see beacons on their display.
      1. Clicking on a beacon will reveal more information about the hole.
   3. An arrow may appear on the ground to point the user in the right direction
      1. An arrow will appear to point the user to the default starting hole or the next hole in the course if they are far away from their destination hole.
      2. The user will be able to change the staring hole if they choose to do so.
      3. The user will be able to mark a hole as complete (or discard a hole) if they choose to do so.
   4. Currently, the map will be restricted to a landscape view to accommodate for other on-screen features.
4. Viewing the score (during use, part 2)
   1. A scoreboard overlay will be placed on top of the cameral view.
      1. The scoreboard will be small, in the top right corner, and only display one player’s score at a time. Swipe left and right to view different player’s scores (multiplayer only).
      2. To add to the score, simply tap the scoreboard.
      3. To subtract from the score, 3-D touch on the scoreboard.
   2. Setting and configuration for the score will be available in the settings menu (see section 5).
   3. Individual player scores will be saved to Game Center if the player is signed in.
5. Creating courses (during use, part 3)
   1. Users will be allowed to create public or private courses.
      1. Public courses will be stored on a server (see section 7).
      2. Private courses will be stored onboard the user’s phone if possible. Otherwise, the courses will be stored the same as public courses.
   2. Courses will be created by placing pins on an Apple Maps or Google Maps satellite view map (first pin will become default starting location).
6. Changing the settings (menu)
   1. A settings button will be displayed in the top right corner (right side of the scoreboard).
   2. The menu will appear as follows:
      1. Any necessary Game Center setting/links will be shown here.
      2. Multiplayer connection settings will appear here (see section 5)
      3. Basic UI options may be available.
      4. Notification (see section 6), GPS and Camera setting will be linked here.
      5. Developer information will be shown here.
      6. Legal notices will be shown here.
   3. Pressing the settings button will bring users into a new frame, causing the camera view to become hidden entirely.
7. Multiplayer (other, part 1)
   1. Multiplayer will be made possible through the use of Game Center and an internet connection.
   2. User’s will be able to invite each other to a game, where they will be able to see each other’s scores during gameplay.
8. Notifications (other, part 2)
   1. Game Center notifications will appear when players are invited to play each other.
   2. No other notification variants are planned.
   3. Players will be able to turn on/off notifications in the iPhone settings application.
9. Viewing/Hosting public maps (other, part 3)
   1. Maps will be stored either on a server (such as Microsoft Azure) or on Game Center (preferred option).
   2. Users will be able to view courses on a standard map that can be accessed by zooming out from the camera view (a back button will appear when viewing the standard map).
      1. Either Apple Maps or Google Maps will be used for viewing the standard map.
      2. Pins will appear where Frisbee courses have been made. Clicking on a pin will load the Frisbee course if the user is nearby.