# Week 2 The Geo-location app

**Goal**: Allow a parent to set up a geo-fencing monitor for their child. The parent sets a point and a radius within which the child is supposed to be. If the child moves out of that, the parent is notified.

**App user interface:** There are two apps, parent and child.

The parent app does two things

1. Create parent userid
2. Set preferences for the parent
3. Get status

The child app does only one thing – once activated with the parent’s userid, it constantly sends its location to a server.

**Web Version of the above app**

Visit <http://protected-wildwood-8664.herokuapp.com/> and explore the various options. It is a fully working web version of both the parent and child apps. Our goal is to create iOS apps that communicate with the backend using JSON.

**URI’s for JSON Services required to build the two apps explained above**

1. Create parent userid
   1. Assuming you have three properties userID, latitude and longitue
   2. Create JSON string from this Objective-C dictionary using NSDictionary to JSON conversion API.
      1. NSDictionary \*userDetails = @{@"utf8": @"✓", @"authenticity\_token":@"EvZva3cKnzo3Y0G5R3NktucCr99o/2UWOPVAmJYdBOc=", @"user":@{@"username":self.userID,@"latitude":self.latitude,@"longitude":self.longitude,@"radius":self.radius}, @"commit":@"Create User", @"action":@"update", @"controller":@"users"};
      2. Convert to JSON String using NSDictionary to JSON conversion API
   3. HTTP POST above JSON to  /users
2. Set preferences for the parent
   1. Create JSON from this dictionary
      1. NSDictionary \*childDict = @{@"utf8": @"✓", @"authenticity\_token":@"EvZva3cKnzo3Y0G5R3NktucCr99o/2UWOPVAmJYdBOc=", @"user":@{@"username":self.userID,@"current\_lat":self.latitude,@"current\_longitude":self.longitude}, @"commit":@"Create User", @"action":@"update", @"controller":@"users"};
   2. HTTP PATCH request – send above JSON to /users/username
3. Get status
   1. Send HTTP GET request to /users/username.json
      1. Convert JSON to NSDictionary and extract value for “**Is in zone”**

**Technologies we’ll explore**

1. HTTP, JSON and some debugging tools
2. HTTP calls using Objective-c
3. Using the device GPS
4. Synchronous vs. asynchronous calls. Pros and cons.
5. Underlying design patterns for asynchronous
6. XCode interface builder
7. Lifecycle of a simple objective-c app
8. User interface development for iOS
9. JSON-Obj-C conversions

**Resources**

**HTTP related tools**

<http://curl.haxx.se/>

<http://www.wireshark.org/>

**Geolocation**

<http://stackoverflow.com/questions/6894624/how-can-i-get-gps-location-in-iphone>

Official doc <https://developer.apple.com/library/mac/documentation/CoreLocation/Reference/CoreLocation_Framework/CoreLocation_Framework.pdf>

**Networking**

Simple tutorial <http://codewithchris.com/tutorial-how-to-use-ios-nsurlconnection-by-example/>

Official docs

<https://developer.apple.com/library/ios/documentation/Cocoa/Conceptual/URLLoadingSystem/URLLoadingSystem.pdf>

**General App development**

<https://developer.apple.com/library/ios/referencelibrary/GettingStarted/RoadMapiOS/RoadMapiOS.pdf>