**Athlone Institute of technology**

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**Project discription**

**Msc In Software Engineering**

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Msc In Software Engineering Project

# What is GeoFencing?

Geo-fencing is a feature in a software program that uses the global positioning system or better known as [GPS](http://searchmobilecomputing.techtarget.com/definition/Global-Positioning-System) or radio frequency identification to define geographical boundaries.

Geo-fencing allow an administrator to set up [triggers](http://searchsqlserver.techtarget.com/definition/trigger) so when a device enters or exits the boundaries defined by the administrator, an alert is issued. Many geo-fencing applications incorporate Google Earth, allowing administrators to define boundaries on top of a [satellite](http://searchmobilecomputing.techtarget.com/definition/satellite) view of a specific geographical area.  Other applications define boundaries by longitude and latitude or through user-created and [Web-based maps](http://whatis.techtarget.com/definition/Virtual-Earth).

Geofence virtual barriers can be active or passive. Active geofences require an end user to opt-in to [location services](http://searchnetworking.techtarget.com/definition/location-based-service-LBS) and a mobile app to be open. Passive geofences are always on; they rely on [Wi-Fi](http://searchmobilecomputing.techtarget.com/definition/Wi-Fi) and [cellular data](http://searchmobilecomputing.techtarget.com/definition/cell) instead of GPS or RFID and work in the background.

# What I expect to see as a cutomer of this product?

As a customer of this product and an active member of the Reserve Defence Forces and the Sub Aqua Club what I would like to to see from this product is if I was out with the Defence Forces and I was on the firing ranges in Carnagh with my comrades that I would be able to set up a geo-location boundry around the range so that if any enemy or threats to us where to enter the area that my Range Commander would get an alert telling him that we are in danger, likewise if I was out diving with the Sub Aqua Club and there was a group of us Diving in a built up area maybe a wreck for instance that we could set up a geo-location boundy around us so if any other boats come into that boundry in will send an alert to the Diving Officer so that he can let the other vesile know there is divers in the water.

# How it is going to be implimented and programs needed?

Firstly I will check that i have all the necessary pre-requisites. These include will:

* Android Studio
* An Android device that runs Android or a configured Android emulator. However in order to test entering and leaving a GeoFence, a real device that can be moved around is needed
* The latest version of the Android SDK including the SDK tools component.
* The Google Play Services SDK.

After I have done this step I will then go on to setting up my Android studio and beginning to write my code

# What OS and Why?

The Operating System (OS) im going to be implimenting is Android, there is no clear winner as to which OS is better they are both very evenly matched I have just choosen Adroid as I am an Android OS phone/tablet user and also because I have coded in Android studio before so I will be comleting this project in Android

# What is an API and what ones will be used in the implimentation of the program?

An API (Application Programming Interface) is a set of methods and tools that can be used for building software applications.

Google Maps API will be used in the implimentation of theis project they allow you to display maps on your web site.