**Use case Diagram:**

Admin

Database

Manage Database

Phone

Android OS

Create new Activities

Track GPS coordinates

Communicate GPS coordinates

Display the location map

Detect internet connection

Receive notifications

Communicate between applications

Terminate the application

Website user

Website Display

View a list of saved routes

View a specific route

View points of interest on the route

Mobile User

Android App

Create new routes

Create new points of interest

Update points of interest on the route

Name the current route

Add a description to the current route

Upload route to the server

Add a photograph to the point of interest

Web App

Process received data

Parse information to the database

View points of interest on a route

Display expected routes information

Display all saved routes

Communicate with mobile device

Server

**Use case description:**

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| **Web Application** | |
| Process received data | The server will parse the data received from the mobile device.  The server must be able to handle this data efficiently and decide the best course of action. |
| Parse information to Database | The server must be able to save the information in the correct format within the database. |
| View points of interest on a route | The server will can access a list of all points of interests for a route.  This can then be displayed to the user at a later stage. |
| Display a routes information | The server can access all the information assigned to a specific route  This can then be displayed to the user at a later stage. |
| Display all saved routes | The server can access the database which stores all the currently saved routes. |
| Communicate with mobile device | The server must be able to communicate with the android mobile device.  The communication will allow users to upload new routes to the database for display on a created website. |

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| **Web User** | |
| View a list of all stored routes | The website will display all routes currently listed in the database to the user. |
| View the information for a specific list | The website will allow the user to select a specific list.  The specific information for the selected list will be returned to the user. |
| View the points of interest for a specified route | For any selected route the user will be able to view specific points of interest for said route. |

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| **Database Administrator** | |
| Manage the database system | The administrator must be able to log into the database administrator facility to manage the database and collected data. |

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| **Mobile user** | |
| Create new routes | The user of the android application will be able to create new routes which will record their GPS coordinates and any desired points of interest. |
| Create points of interest on a route | The user of the application will be able to add points of interest with their current GPS coordinates and add it to the route. |
| Update points of interest on a route | The user can modify and or update the points of interest on the route. |
| Create a name for the route | A name can be specified for the route which can be used to identify the route at a later time period. |
| Add a description to the route | A description can be added to the route which will be displayed on the website. |
| Add a photograph to the point of interest | A photograph can be retrieved from the devices camera, which can then be applied to the point of interest as a visual aid. |
| Upload the completed route to the server | Once the application user is happy with the route they can upload it to the server which will handle the request and store the information in the database. |

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| **Android Operating System** | |
| Create new activities | The operating systems needs to creative multiple activities and display these accordingly to the application user. The operating must also handle the user interaction as user interface display. |
| Track GPS coordinates | The operating system will handle the tracking of the GPS coordinates. This will track the users current position on their route for use in path drawing and point of interest positioning. The operating system must also terminate the GPS tracking when the user requests. |
| Communicate GPS coordinates | The GPS coordinates must be communicated through the infrastructure. The mapping system must know about the GPS coordinates in order to display the correct local map and the application itself must know about the coordinates in order to effectively plan the route. |
| Display the location map | Based upon the GPS coordinates the local area map will be displayed to the user. |
| Detect internet connection | The Operating System will check for a suitable connection point. This is required to upload information to the sever. |
| Communicate between applications | The Operating System must handle communication between applications efficiently. If the user requests use of the camera then this request will be dealt with. |
| Terminate the application | Once the user exits the application the application must in fact terminate. |