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COS 301 Software Engineering: BroadSword-GIS (NavUp MODULE) DOCUMENTATION

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GitHub Repository:

https://github.com/Broadsword-GIS-Org/SE_BroadSword-GIS

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1 Scope

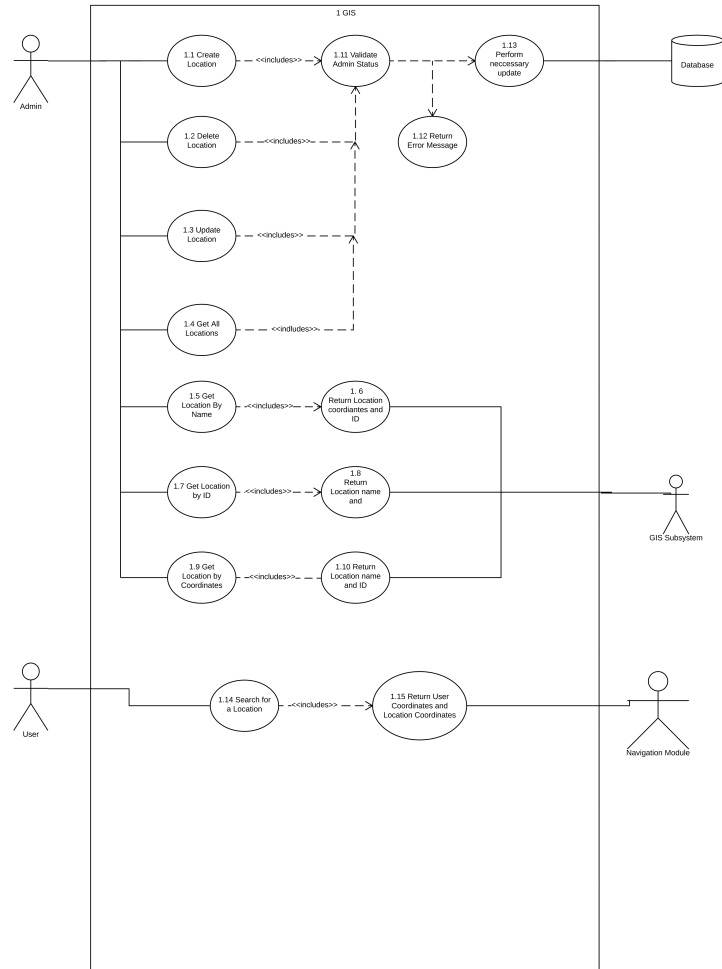
Services to gather, maintain, persist and provide information related to fixed spatial information needed for NavUP. It is about the creation and maintenance of a GIS Map of the campus and persisting information that can be applied to determine the location of a device based on WiFi signal strengths and other available sources of GIS information. This module provide services to search for locations such as landmarks, buildings as well as venues such as landmarks, lecture halls, labs, etc.

2 Use Cases

2.1 Actors

- Admin: CRUD any kind of singular element Import: Create a batch of elements via upload of a *Json* File format
- User: Get longitude,latitude coordinates and level number of a named location

2.2 Use Case Diagram



3 Service Contracts

- **module.exports.get = function(req, res, next) :** Get all location elements in the system, return A Json Array
- **module.exports.getByBuildingName = function(req, res, next) :** Get all locations in the given building, Return a Json Array
- **module.exports.getRoute = function(req, res, next) :** Get route between two points, return a Json array
- **module.exports.create = function(req, res, next) :** Create a single location element, Persist in Database
- **module.exports.delete = function(req, res) :** Delete a single location element from the database
- **module.exports.patch = function(req, res, next) :** Update a single location element, persist changes in database
- **module.exports.getById = function(req, res, next):** Get a single location Element by ID, return Json object

4 Tools

4.1 Mean Stack

Every in this Module is build on top of the mean stack, in particular express. mean stack is chosen for its performance . it allows for everything to be coded in JavaScript which saves time . Mean stack also support the MVC architecture.

4.2 Mongo DB

Mongo db allows for fast retrieval of large amount of data. since it is a non-relational database it servers a good performance for NavUp GIS system.

4.3 Mongoose Schema

Everything in Mongoose starts with a Schema. Each schema maps to a MongoDB collection and defines the shape of the documents within that collection. This works well since there is a need to exchange data in a standard format in between modules of NavUP.

4.4 Seed npm-packgae

This seed package is used to automatically populate the database when the server starts with location elements from a Json file format

4.5 NSQ

NSQ is a library wich is used to communicate with other NavUp modules in real time