Business Process

1. Introduction

This is a document which provides a detailed description of a business procedure which is designed to meet an identified need in our group - Guidance's user stories. To be effective, business processes must be formally designed, structured, documented, and communicated. It is important to capture as much detail as possible in the process description either verbally, graphically, or both. By doing so, all group members and stakeholders using the process will be able to more easily achieve the desired results.

Each process explained in this document will have 3 points:

Process scope: What is inside the scope of the process, as in what will be covered, and outside scope - what will not be covered in the process.

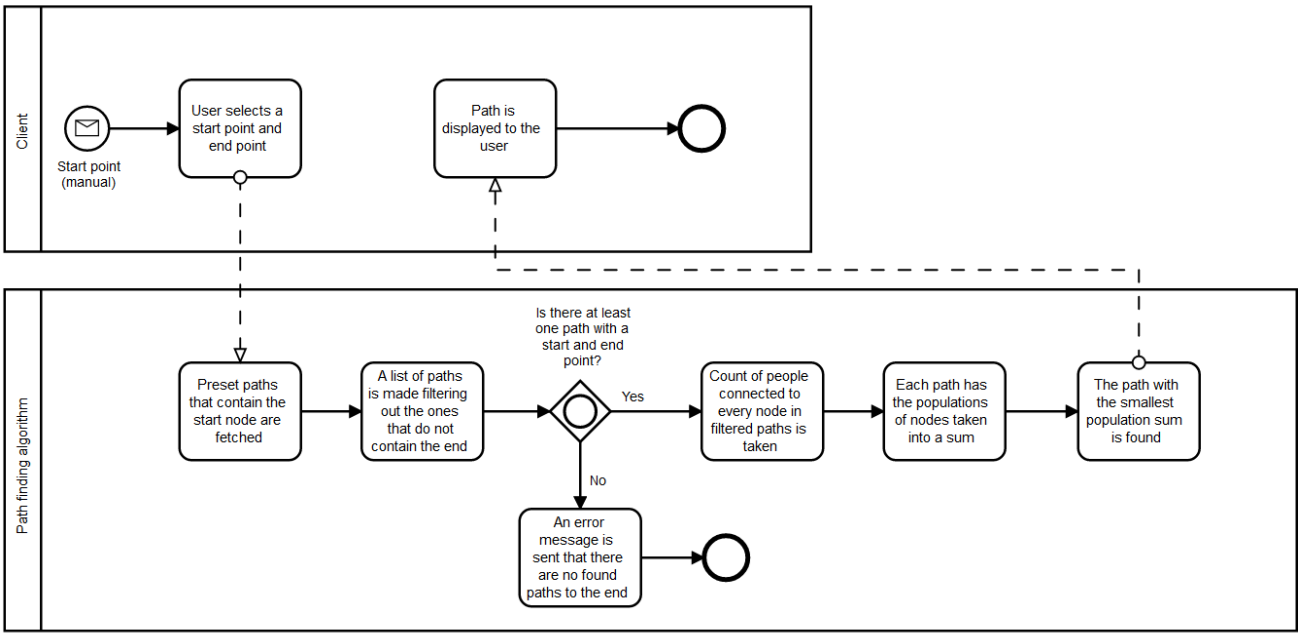
Process diagram: A BPMN style diagram explaining the procedure of a process in detail.

Control Points and Measurements: Methods and precautions of securing risks within the application.

2. Explanation of Routing Application

Process Scope: This process pertains to the core function of routing within the application. It does not include other functions of the application such as receiving a floor plan via ssid or the administration pages and creation of a floorplan or such.

Process Diagram:

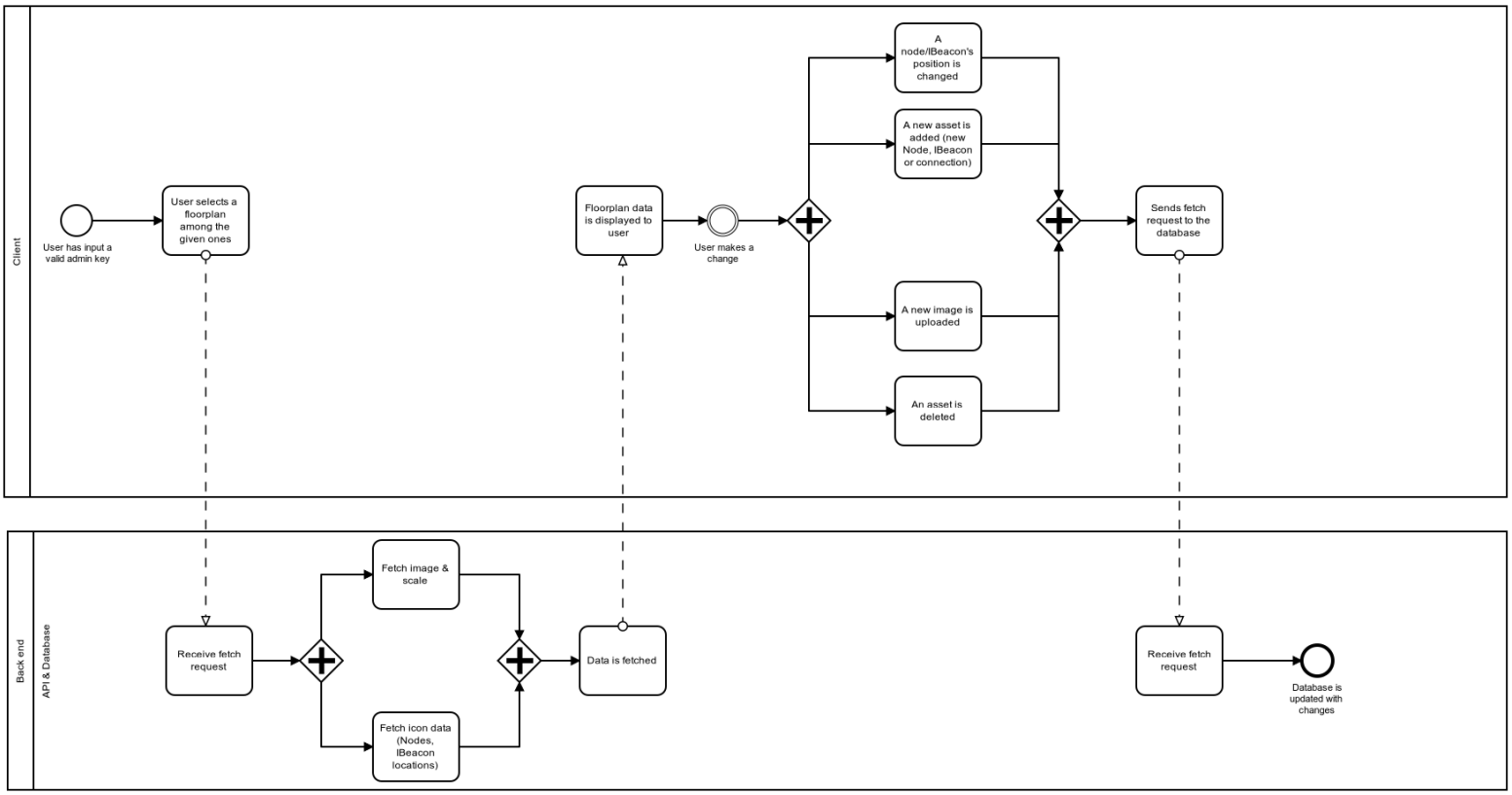


Control Points and Measurements: Our team uses the function of preset paths later articulated in the Editor application (see point 3), which gives the administrator users the option to create paths around their accessible floorplans. We have chosen to use this method over a pathfinding algorithm for the sake of quality assurance. While the algorithms created by renowned mathematicians, for instance - Dijkstra, whose algorithm we were planning on using at the earlier sprints, are faultless, it is another question to apply it into different situations. The majority of pathfinding algorithms focus on the closest path from a start to an end node, while the main priority for the Guidance app is to show that, but as well as the least populated path. Adding an entirely different parameter, as important, if not more, as distance is incredibly difficult. And with a difficult variation of this algorithm, come many bugs. So we have decided to instead focus on a solution that has less risk to ruin itself by giving more options to the administrator users. The only possible errors that may come from this solution is human error from the administrator incorrectly setting the preset paths they wish for.

3. Explanation of Editing Application

Process Scope: This process pertains to the core function of the editing page within the application, accessed by users that have an admin key. It does not include ssid entering and addition of new floor plans and it does not include the function of adding preset paths to floorplans.

Process Diagram:

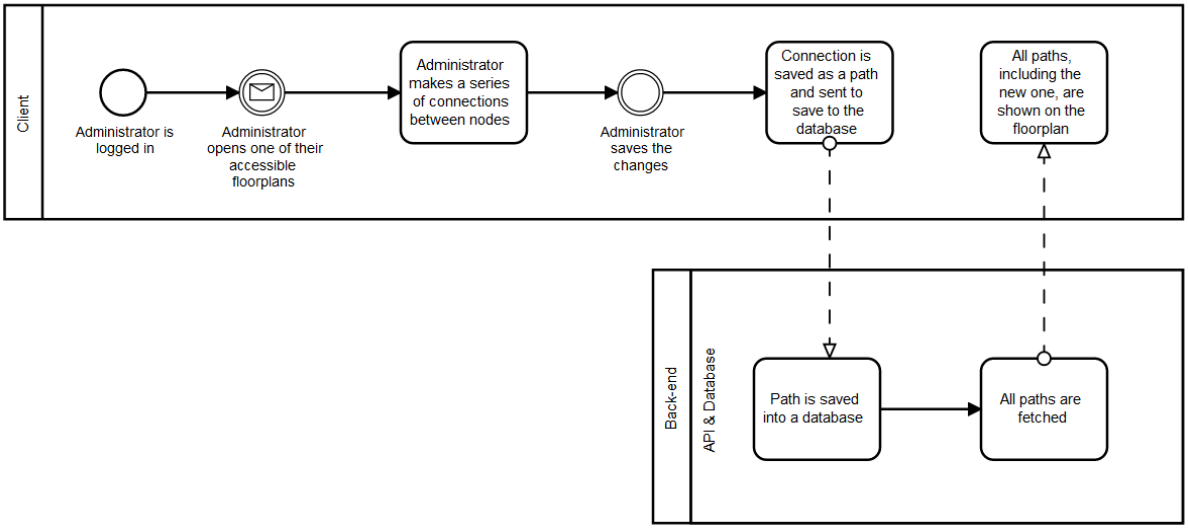


Control Points and Measurements: Functions and methods that are used to connect to the database are thoroughly tested to ensure that they function correctly and inform the end user whenever an error comes up. We have spent extensive time to find a feasible database in order to be able to take multiple queries and connections at once to efficiently make changes.

4. Explanation of Path Creation

Process scope: This process pertains to the core function of the path creation within the editing page of the application, accessed by users that have an admin key. It does not include ssid entering, addition of new floor plans, or other functions that the editor offers, which have all been pointed out in point 3.

Process diagram:

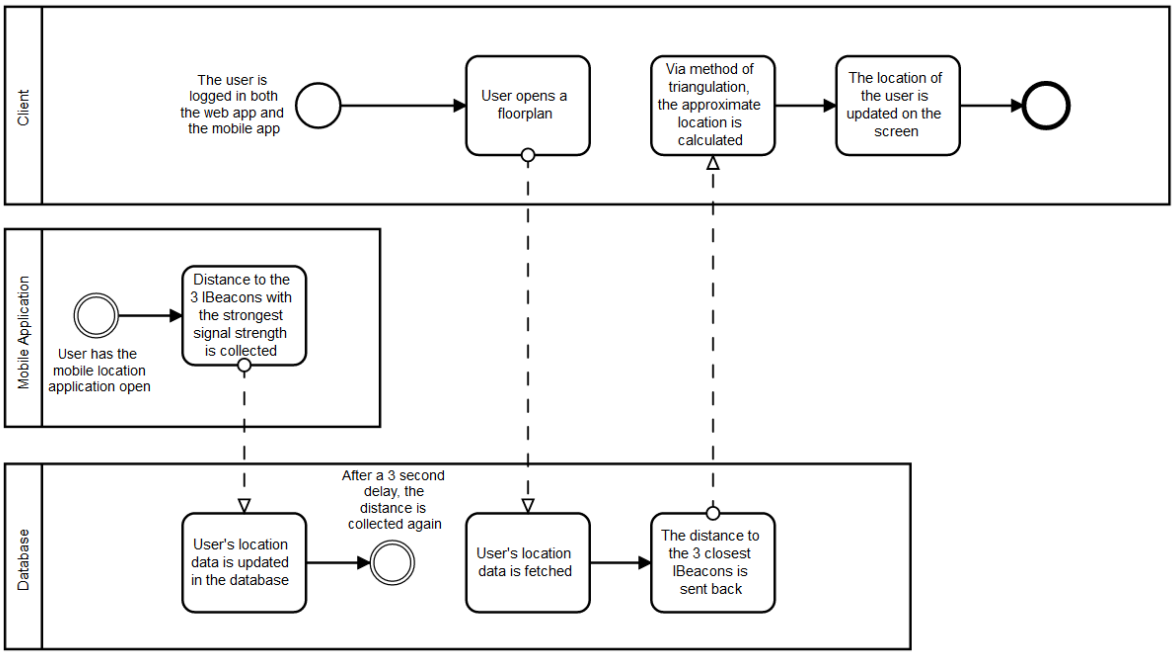


Control Points and Measurements: The connections function gives a user much freedom into forming their path for the accessible floorplans. With the id's of every node displayed to the administrator, they can make a connection between two nodes by writing them down into the connector tool. While this may prove more tedious than something like drawing a path with the cursor, it is easy to implement and much easier to test. Note that checks will be made if a connection already exists within the writing of a path or if a connection is impossible, such as a node connecting to itself.

5. Explanation of Triangulation Application

Process scope: This process pertains to the core function of triangulation within the application, accessed by all users that are logged into the web application and the mobile locations app.

Process diagram:



Control Points and Measurements: The way triangulation works is it takes the signal strength of the 3 closest beacons that a user is and with geometrical calculations, their location is shown on the floorplan. The application is made in mind to be as moral as possible, making all user data that is not absolutely necessary anonymous to other users, administrators and super-administrators. Even their exact location is not taken, just their signal strength to the respective iBeacons. Their location is updated as frequently as possible on the map to ensure the user knows where they are located at all times.

6. Stakeholders

User	Connected business process
user	Login, Mobile Location Fetch app
admin	Editing building floor plan data
superadmin	Managing admin access and privileges