

Guido



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Your Indoor Navigation Friend.

Problem

Both the time people spend in buildings not familiar to them, and the complexity of buildings themselves increase as time passes. Some buildings try to solve this by selling maps of the building, some other by building clunky kiosks inside the building, but neither are elegant solutions for this situation.

Demo link here!



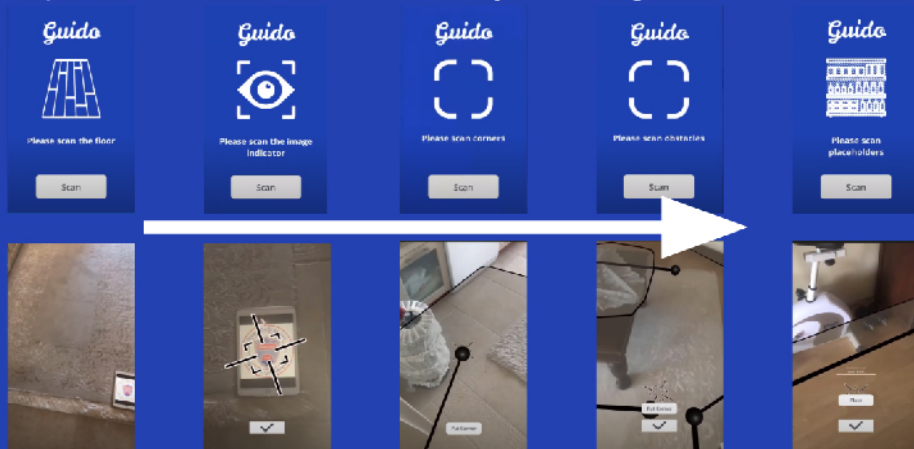
Solution

Guido : A highly accurate augmented reality application for creating indoor mapping and allowing for localization and navigation within said maps with the help of customisable 3D agents.

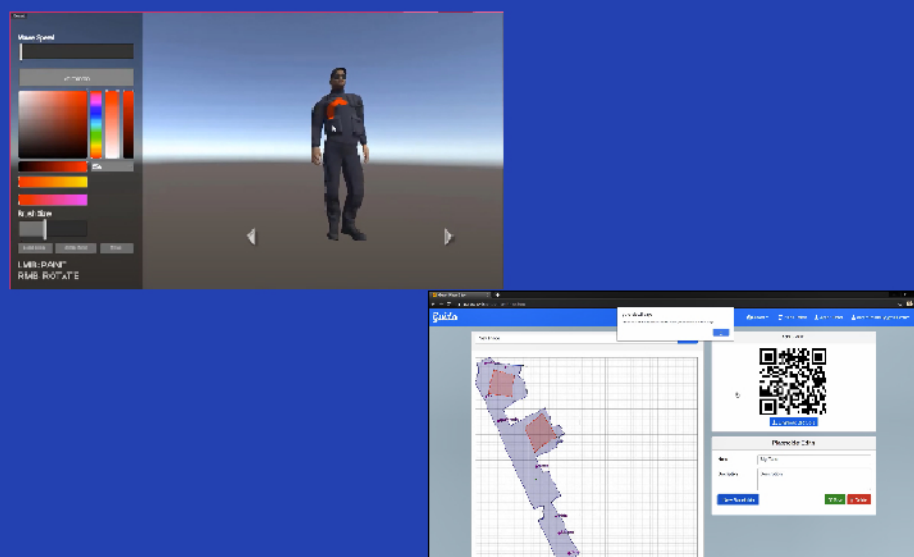


Features

Indoor Map Creation: Using an IOS or Android smartphone, scan the floorplan of a closed space by scanning the corners of the space. Then mark the corners of obstacles inside the space. Finally, mark the places of "placeholders", places of interest in the map, and name them. Any viewer of the map will be guided to a placeholder of their wish by a 3D Agent.

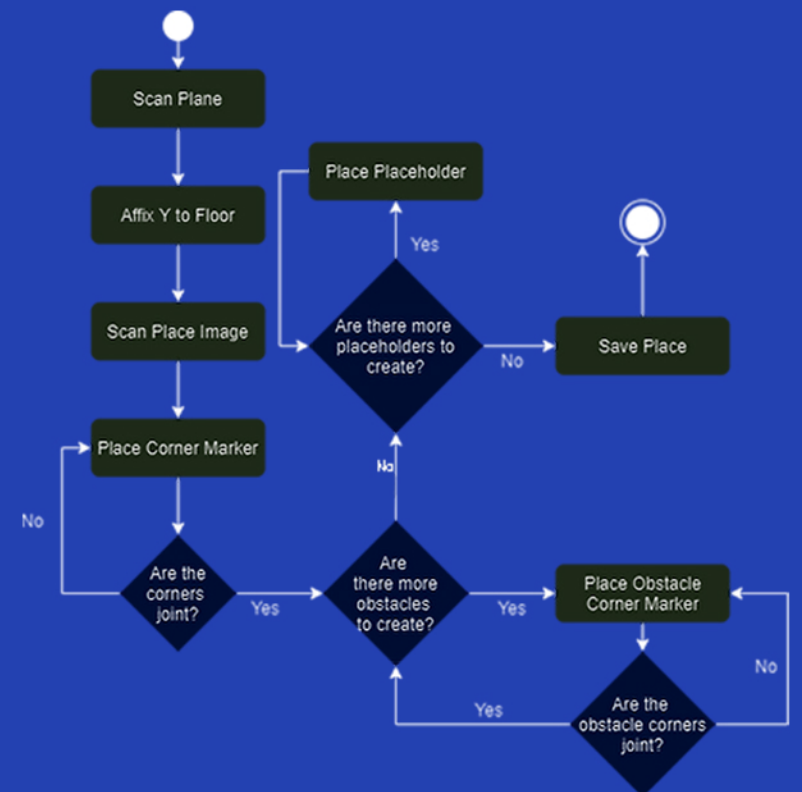


Place Administration: Using a browser, see the floorplans you have made comprehensively, add and edit placeholders and their descriptions at-will. Create a QR code for the map that will give access to it through the mobile app. Create a virtual guide, a "3D Agent" by selecting from a number of meshes, and painting it with brushes or monocolour decals.

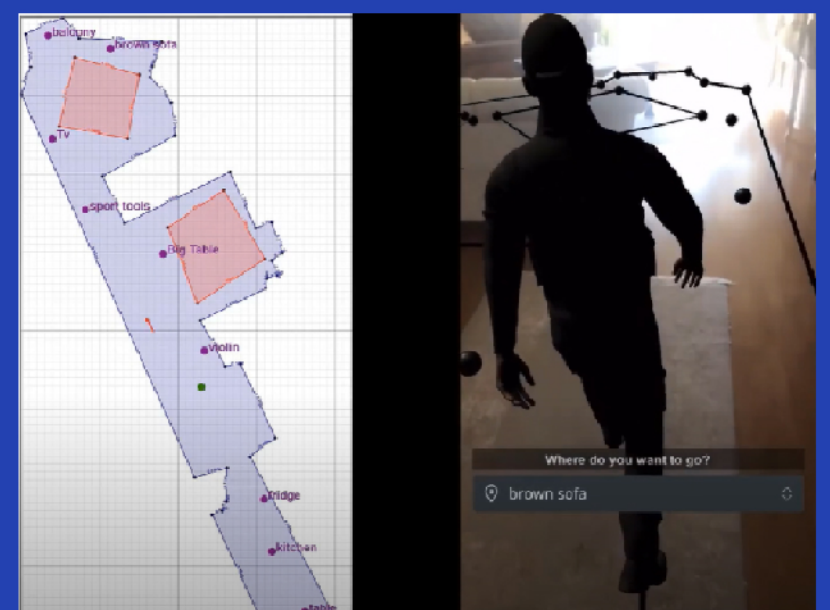


Localisation and Navigation: Read a QR code for a Guido map and put in where you want to go. The custom 3D Agent will guide you there, and upon your arrival you'll see the description of the arrived placeholder. Meanwhile, the place owner will be able to see where you are on that map and what direction you are facing.

Map Creation Workflow



Path Finding Model



- Visibility Graph Creation => $O(N^2 \log N)$
(Use corners of polygons to find closest)
- Creating Shortest Path Between Two Points Using Saved Visibility Graph