An exploration of Simultaneous Localisation and Mapping using Lidar

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Design Manual

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1. Introduction

In this document I will be modelling my envisaged application. I will do so through a series of system sequence diagrams describing the aspects discussed in my Functional Specification. Additionally, I will provide a mock representation of what I intend my final product to look like.

2. GUI

In this section I will provide a series of mock-up representations of the application which have all been created using wireframe pros mock-up tool.

2.1 Start Scan.

In the below image we can see what the initial screen the user will see looks like. The image on the left represents the live SLAM data that will be feed to the user. This screen will also serve as the navigation for the user to select what they wish to do. SLAM Data will be feed live to the user but when the 'Start Scan' option is chosen the Picar will begin driving.
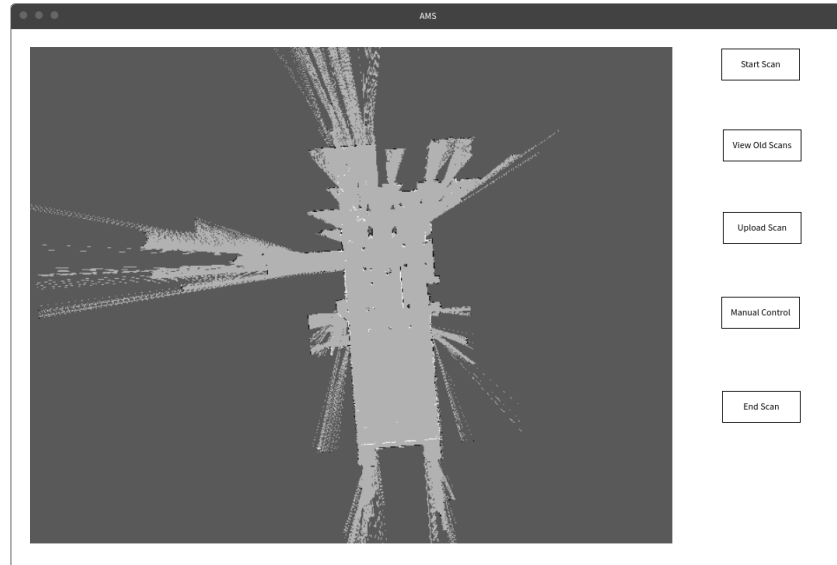

2.2 Take Manual Control

In this screen we can see what the user will see when they select the 'manual control' option. The SLAM data will be updated with a live feed from the onboard camera and the user can begin driving with keyboard strokes. Both WASD and the arrow keys will be the key binds for driving.
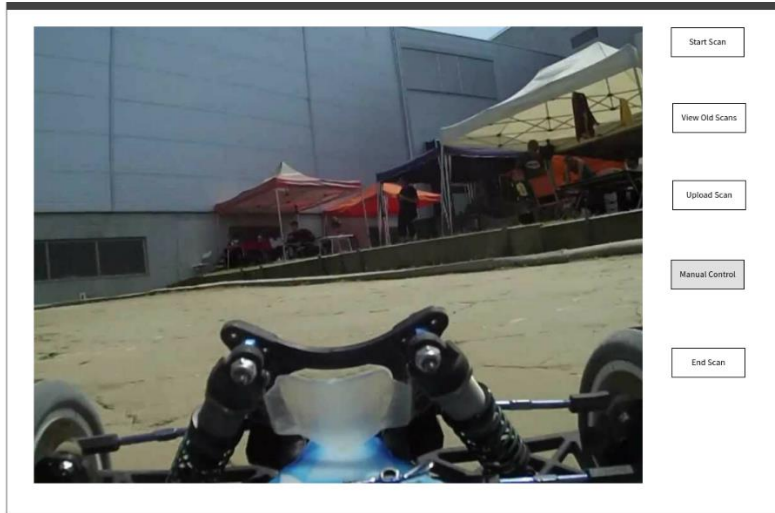
2.3 View Old Scans

In this screen we can see a database entry of what the various previous scans are. The user may select what they wish to see, and the scan will be loaded from the database occupying the live scan data.
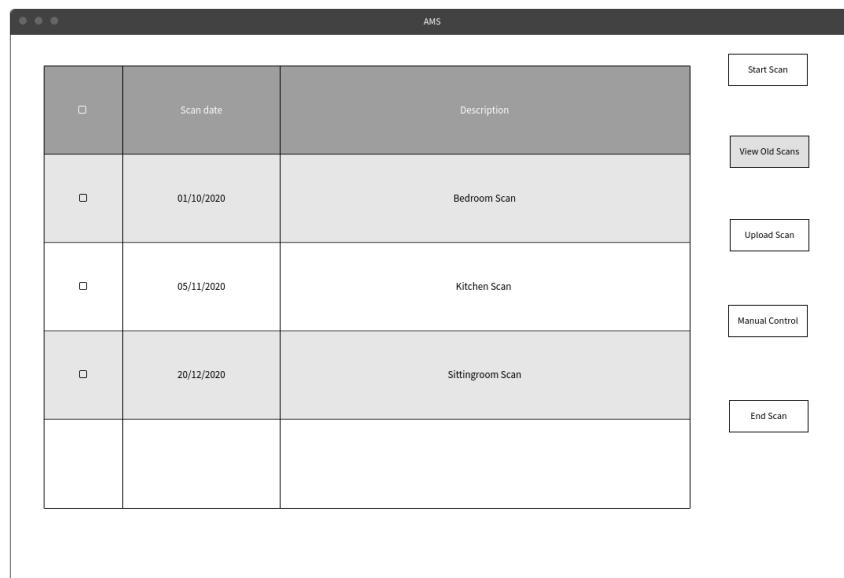
2.4 Upload Scan

In this screen we can see how 'Upload scan' will work. The user selects the option and then a popup window appears asking the user to enter the desired name of the scan. The date is recorded and is uploaded to the database.
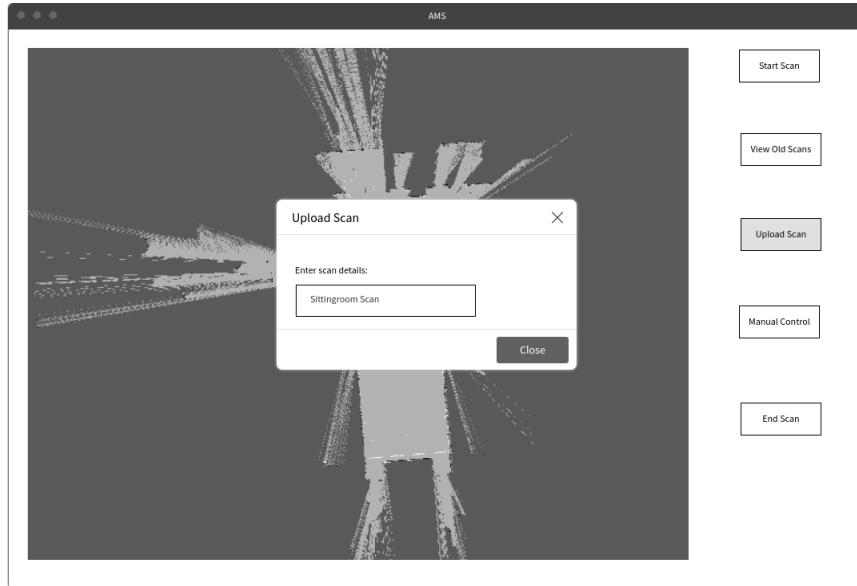
2.5 End Scan

This screen represents what happens when the user selects the 'end scan' option. The Picar stops and the live feed will end.