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Android Application for AGV

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ABSTRACT

This application is created as a part of an internship under Instituto de Telecomunicações, Lisbon. The objective of this project is to create a portable alternative for creating maps of an unknown area that can be used for navigation and localization. The project is built as a native application in android studio. The application has the features like connecting to the robot via Wifi network, controlling the robot using UI build into the application, changing the speed of the robot, displaying the live map generated by the robot, updating the location of the robot inside the map, saving the map created by getting data from the LIDAR sensor. These features of the application makes it easier to generate the map of the unknown area and storing it for the later use. The application also requires the robot counterpart which runs on Ubuntu with robot operating system (ROS), installed on raspberry pi 3 b+. The communication between the device and the application is done using ROS multi-machine communication functionality. The ROS master is made to run on the robot and it is used to establish the communication between the two machines for transfer of the data. The project was made in three stages, stage one was to carry out state of art analysis, followed by implementation and testing of ROS navigation stack and finally development of the android applic