

Cleaning and Mapping Robotics Project

Brian Lauer Jaden Kannagala

Advisor: Dr. Suruz Miah

Department of Electrical and Computer Engineering
Bradley University
1501 W. Bradley Avenue
Peoria, IL, 61625, USA

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Outline

1 Introduction

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Introduction

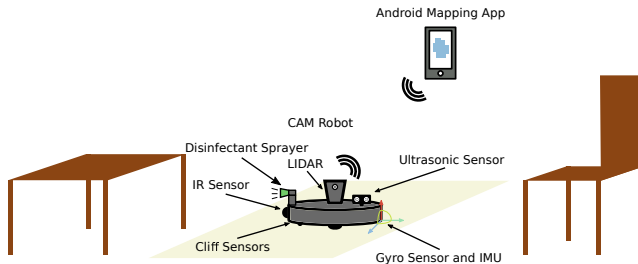


Figure: Diagram representing the working principle of the cleaning and mapping robot

Progress

Jaden

- Successful interface of BeagleBone Black wireless and Irobot Create 2.
- Better control of Create 2 Module via Beaglebone.
- Incorporation of Python Libraries for Beaglebone.
- Obtained the Create 2 wire.

- Here are videos of the interfacing between the Irobot and Beaglebone.
Note: I still must adequately study the libraries to do more with the Create 2 Module.

- Added a database to the app using the Android Room persistence library (abstraction layer over SQLite)
- Migrated `ListView` to `RecyclerView` for improved performance
- Improved refresh button to prevent adding the same robot multiple times to the `RecyclerView`
- Redesigned the app to include only two activities and eliminated the `TabLayout`

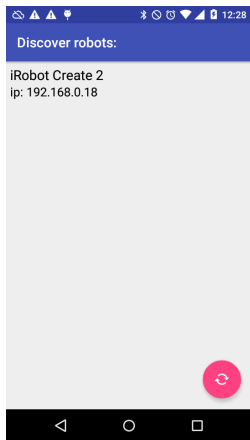


Figure: Main activity view

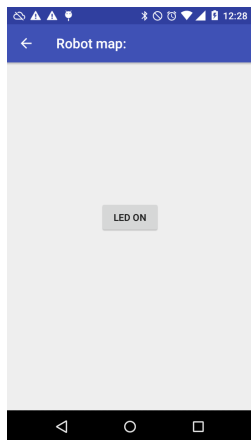


Figure: Mapping activity view



- Jaden's plans

- Interface with Beaglebone through the use of an app.
- Find a better way to supply power to the Beaglebone while it is interfaced to the Roomba.
- Explore features of the Beaglebone and consider the implementation of various sensors.

- Brian's plans

- Continue adding to the Python receiver program to send data from lidar, add separate receiving thread for clients
- Remove robot from RecyclerView when the connection is no longer available
- ~~Upload app changes to the github repo~~
- Begin working on the mapping feature

References I

-  Github python Libraries used for Create 2 module and Beaglebone:
<https://github.com/MomsFriendlyRobotCompany/pycreate2>
-  Stack Overflow post
<https://stackoverflow.com/questions/62704623/>

Any Questions?