

Roombee Manual

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1 Disclaimer

This software has been developed to allow curious owners of a iRobot Roomba 500 series to gather some experience in the domain of mobile robotics. A serious help in the development was "The MATLAB Toolbox for the iRobot Create" which can be found here. The author can not be held responsible for any damage caused directly or indirectly by the software.

2 Prerequisites and Requirements

In order to use this software you need a few things. Apart from the robot (you can find cheap offers of used robots on ebay, or your local equivalent) and a laptop you will need:

- A working Matlab version (all above 2012b should work fine)
- A serial connection (USB to serial is sufficient, however you can find offers that provide a serial to blue-tooth connection)
- (optional) Some kind of small platform you can mount on the robot to provide a more reliable base for your laptop

3 Get the Robot operational

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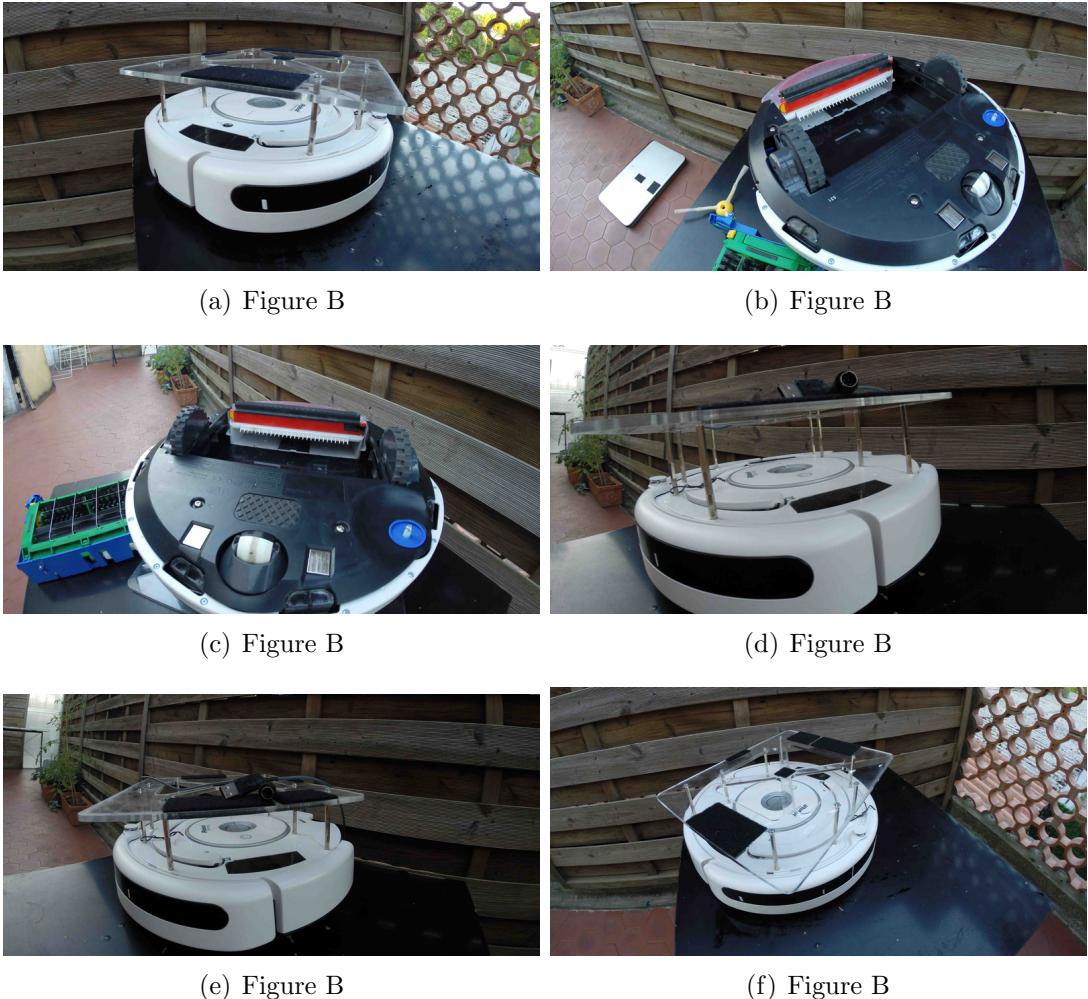


Figure 3.1: How to prepare the iRbot Roomba

3 Get the Robot operational



(a) Figure B

media/resized/7.png

(b) Figure B



media/resized/8.png

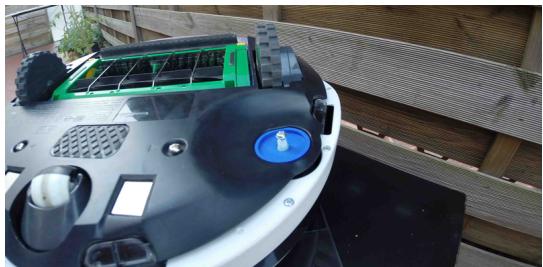


(c) Figure B

(d) Figure B



media/resized/10.png



(e) Figure B

(f) Figure B

Figure 3.2: Extract of video sequence [?] - dynamic obstacles (b)

3 Get the Robot operational



(a) Figure B

(b) Figure B



(c) Figure B

Figure 3.3: Extract of video sequence [?] - dynamic obstacles (b)

4 How to use the Code

5 How to create the Light Graffiti Effect

The tool used for post processing the video material is Kdenlive. It should be accessible through the apt-get command. Once installed it handles much like any other video editing software. The effect you are looking for is called "Light Graffiti" and can be found under:

Effect List/Misc/ Light Graffiti

You have to choose your parameters so that the brightest point in the video is the light source in the center of the robot. A head lamp for camping should be sufficient.

Examples can be found at:

- Youtube video of a Roomba following a certain letter sequence indoors
- Youtube video of a Roomba following a certain letter sequence outdoors