Implementation of a Robot Behaviour Learning Simulator

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Improvements Made

To be honest, I was not very productive this week. I apologize for that. I saw the collision avoidance methods and algorithms that I saw last week, but wasn't able to implement those algorithms. Moreover, I wasn't able to get the function up and running to print the log file for obstacle/free-space detection. I did however followed for some different approaches I can do multi robot path planning and have some questions for the same to ask after the end of the presentation.

Approaches to use.

As I wasn't able to implement those collision avoidance algorithms, I looked for various different approaches.

- Multi TurtleBot Simulation - This package is present with an argument for the number of turtlebots you want in the environment and it's starting position.

- Interceptor Simulation - One robot will move and the other will try to intercept it's path and then the particular collision avoidance will be done.

- Another Multiple Robot Simulator Package - which will convert the map into a search graph and then execute the path planning. (Attached paper in the mail)

Simulation Video

I will show a simulation video for the multiple turtlebot simulation package now.

I'm not sure if the approach I am employing for generation of obstacle/free-space log file, and since I am not an expert in this topic it will be helpful if I could get some idea in ROS. I asked Prof. Boissier for help as he had a lecture about ROS in one of his lectures. He told me to contact someone named "Fabien Badeig" in April but I didn't get a reply. It will be helpful for me if it is possible by you to ask him to reply. (It is completely fine not to, I will search more on such methods with no worries).

From: Olivier Boissier <Olivier.Boissier@emse.fr>

Sent: Monday, April 12, 2021 9:01:02 AM

To: Kushagra Singh Bisen <k.bisen@yahoo.com>

Cc: Fabien Badeig <fabien.badeig@emse.fr>

Subject: Re: Request for Information

Hi Kushagra

I will not be able to answer all your questions since my knowledge on ROS is rather limited. I forward your email to Fabien Badeig who is more expert than me on all these topics.
All the best,

O. Boissier

A question.

As we are trying to 'predict' the colliison in an environment in the end goal of the experiment. If this is the case, won't using a predefined algorithm with more than 99/100 accuracy of collision avoidance will be irrevelant for the simulation study we are doing?

Thank you for your time.