Lab 1 Report

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Explain not what you did, but the ideas behind it, i.e. the reasoning behind your decisions. Use the following questions to guide your deliberations:

There are symbols that englobe a great meaning. From the iconic symbol of luxury in the star of Mercedes benz, to the M of mc'donalds, there are icons that represent brands. The idea behind our lab was to recreate a symbol present in our everyday. We decide to program the symbol of command in MacBook, since three out of four in the team have a MacBook and we use the key command in daily basics.

The first challenge was to decompose the figure we are trying to create in specific movements that can be replicated and form the figure. Since the icon is composed by four circles that are connected, we realized that the solution was a 270 degrees turn, followed by a forward movement. By repeating four times the movement, the symbol will be created.

At the beginning of the lab, the main issue we had was that we were not familiarized with the robot itself, nor with how to control its components. This was a challenge, even when having the robot's API on hand, although it explains what functions activate a given part, it is not that explicit on how they move or how much a motor rotates for example. Most of these problems we solved them by reading more, but mostly by trial and error.

Other problems in this lab were more related to configuration, it appears most of the tools are made or more developed for Windows machines, which we have none. We weren't able to configure an IDE, but we accomplished to compile programs and pass them to the robot in order for it to run them. Lastly, we had some problems on the robot configuration since a team member while trying to flash the robot, it got bricked.

The final problem we face in the practice, was making the ultrasonic sensor work. Since we were sure that the code was working, the hypothesis was that our sensor was broken. After testing this hypothesis, we realize that it was true, and changing the sensor solve the problem.

The robot can be used in gardening. If it make a 360 degrees turn, then advance a little, and the make another 360 degree turn, this until it hits something, it can be used to prune large open spaces.

To accomplish the mission, there is a need of changing the hardware configuration of the robot. The change will include the installation of a mower that will be cutting the grass.

Another modification that can be made is to map the place in which the robot keeps bumping, this can be used for a lot of purposes an industry example are the roombas, which are the automated vacuum cleaner which map the room or space in which they are cleaning in order to know where they have cleaned and where they should clean.