

Title

Introduction

This section outlines the problem being investigated. It should describe it in such a way that an individual not familiar with the challenge will be able to understand the problem being addressed.

Figures are generally useful here to give a visual representation of the challenge. Be sure to label all figures, as shown in the figure on the right.

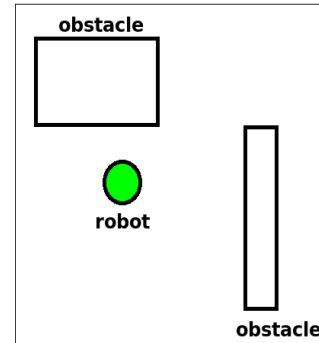


Figure 1: A Layout of the robot challenge.

Approach

This section outlines your approach to the problem. It should typically address the following points:

- your structural approach to building the robot (What did you have to do to make the robot physically functional? Were there any novel designs you came up with?)
- the design of your software (How did you program the robot to accomplish the challenge? What software features in the Lego Mindstorms software did you learn to apply?)
- the mathematical equations (if any) that you used to solve the particular challenge, such as:

$$F = m a$$

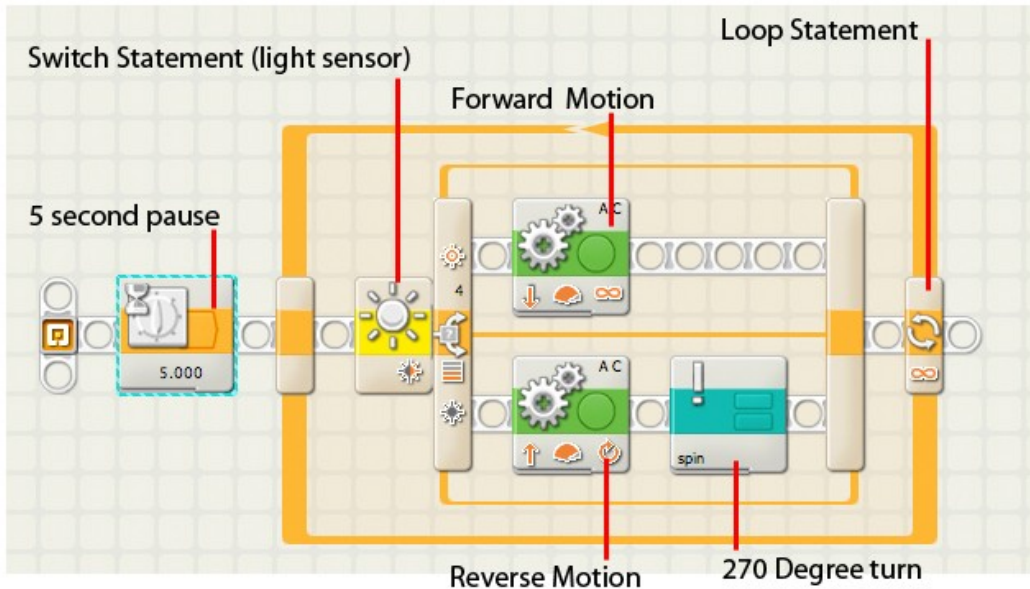
Equations are also helpful so the reader has an idea of what mathematical formulas were used by you to arrive at your results. It is also helpful for us (the instructors) to determine where (if at all) you may have gone wrong in your solution to the challenge.



Figure 2: A picture of our robot

Pictures are also useful to have to illustrate your actual robot (i.e. what it looked like, the stages of your construction process, etc.). It's also important to label this as well.

Flowcharts are also useful to have to help illustrate how your algorithm/software was implemented. A screenshot of the lego mindstorm software often works well:



Annotating the flowchart is useful to illustrate what each block represents; remember, you want someone who may not be familiar with the class to be able to read and understand your report.

Challenges

This section addresses any challenges you faced during the overall design and implementation of your robot challenge.

Questions you should consider answering are:

- What mechanical approaches did you consider that didn't quite work as you expected?
- What software architecture designs didn't quite work the way you had hoped?
- If you didn't succeed in completing the challenge, what went wrong?

Conclusions

This section concludes your report. You should address the following:

- What lessons did you learn (in terms of what worked mechanically, in software, in the equations, etc.)?
- Was there one parameter or feature that really affected the performance of your robot? If so, what was it and why do you think it had such an effect?
- What would you have done differently?