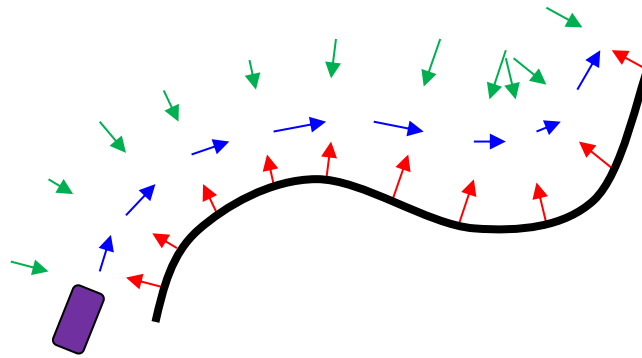


# Assignment 5

## Bonus 12.5%

1. **50%** Use a potential field to guide the robot to the desired distance from the wall, e.g. 1 m and then use an attractive force parallel to the obstacle (perpendicular to the orientation the obstacle is detected) to move it along. Use attractive and repulsive forces similar to assignment 3. Using ROS and stage, write a program that will make the robot follow the closest obstacle. Save your data in a bagfile using *robag record*.



2. **50% Particle filter propagation** (Individual) Using the motion commands of question 1 (bag file) implement a particle filter propagation model and plot the particle cloud as the robot moves. Experiment with different noise parameters.

Your assignment should consist of a pdf document that discusses your approach, difficulties and potential improvements, and a copy of your source code for verification purposes.