WASP Autonomous Systems
Assignment 2

Name:
Email:

General instruction
For each of the questions below answer with sufficient detail so that someone that cannot ask clarification questions understands what you mean. That said, we do not want essays.

NOTE: This is an individual assignment. We encourage collaboration but you should write your own answers, write your code and generate your own results.

Task 2.1

Q: Insert a snapshot showing your odometry and the "ground truth".

Q: What value did you use for the wheel radius (r) to get a decent match with the ground truth?

Q: How does it match your expectations? Comment deviations.

Q: What value did you use for the wheel base (B) to get a decent match with the ground truth?

Q: How does it match your expectations? Comment deviations.

Task 2.2

Q: Describe briefly how you detected collisions.

Q: Is this approach robust and what problems does it have?

Consider more complicated environments, controllers, and real world scenarios when answering this question.

Task 2.3

Q: The detector comes with a class probability for each detection. How would you set the threshold for using a detection of the class car if you wanted your autonomous car to avoid driving into other cars? Motivate your answer!

Q: Which object classes did you see detected reliably in the KITTI sequence and speculate as to why?

Q: What seems to influence the chance of detection of objects?

Q: What advice can you pass on to a developer of an autonomous system that wants to use object detection for an application?

Task 2.4

Q: Provide plots of a) the trajectory given by the estimated car position with and without GPS support and b) the corresponding position errors vs time.

Q: It seems that having GPS measurements during the initial phase improves the result compared to having none at all. Can you explain why?

Q: Which settings did you use for your best result? What criteria did you use to define “best”?
