Accomplished this week:
This week we have worked on getting an optimal PID on flat ground. The PID that we got is incredibly fast and the control error can be neglected. Instead of using a step function as input, we used a sine function. The reason for this is that in reality we don’t get such a rapid jump in velocity as a step function, it is more smoothly like a sine function. After being content with the result we continued with an overall PID. We got one that we though worked well, but when both wheels were affected by a force at the same time it didn’t function as expected. We had also the opportunity to try or code in IT’s robot, but unfortunately the code didn’t work on their robot. So time has been spending on making this work. We also tried to implement LQG of order 3 on the robot. But because of the hardware limitation we couldn’t get the program to work in the robot. The first problem we encountered when we tried to implement LGQ was that our program was too big, 50 Kbit is the limit of how big a program can be for our motor card. And because we did the calculations manually and wrote it in the code, we got a lot of code lines. So instead of doing the calculations manually we did some functions who could calculate this for us. The size of the code became a little smaller, very near the limit. But even if we could program it into the robot, it seemed like the hardware was out of memory. Because we don’t have so much time, we are going to discuss if we are going to try fixing this problem. As we said last week, we have also done some report writing.

Current problems:
So the current problems right now is to figure out why our code doesn’t work on IT’s robot, perhaps it has something to do with their compiler which is different from what we have. The LQG problem is something that we maybe will handle if we got time, probably if we fix the other problems fast. But now we got a bigger problem that was discovered very recently. The problem appears when we send a message via CAN to the robot while it is running. The motor start to drive at a higher speed, instead of slowing down and handle the new command.

Actions points for next week:
- Continue on the overall PID.
- Discuss how we are going to do with LQG.
- Continue on the report.

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