Supervisor meeting

Wednesday, 29th of March 2017

Use Case

- We could design to measure the effect of shifting sands between Aalborg and the sea. Then the measurements can be done more frequently.
- Design for multibeam sonar (same as they use in Aalborg port). The one that is placed currently on the boat is not designed for mapping, just for helping in the navigation.
- The aim is to show that with the navigation and the control it is possible to perform the operation successfully.
- Trajectories will depend on the cone of the sonar and on the mean depth.
- We could include one page about the sonar and which considerations we need to take into account in the design process.

Requirements

- 10cm precision in position should be fine, that is what we aim for.
- With a mapping operation the minimum is 30cm, but if you have 10cm you can also monitor parameters in the water.

Feedback on Reading Material

- Explain the meaning of $x_{\max}$ and $u_{\max}$, clarify particularly the values chosen.
- Remember to include plots of the performance of the control design.
- In the outer loop we should also analyze stability, convergence and time characteristics.
- We should explain what disturbances we consider in the design and which ones are put just to check the controller performance.
- There is a range and a frequency span where the wind and wave disturbances are placed and we can use that to design a robust controller.
- For simulation, we could do different simulations with forces coming from different directions and magnitudes and get a probability distribution of how well we follow the path.

Miscellaneous

- The controller code has been tested with a node that simulates the behavior of the plant.
- Check the base station for the RTK GPS, Mathias on 6th semester is working with that one. Jesper will find it out.
- If we need some help with the hardware or implementation we can talk to Jesper and he will contact Nick.
- Maybe prepare the system so we can ask the professor when we have the lectures about robust control.

Next Supervisor Meeting

Wednesday, 5th of April at 13:00