Exercise on 07.02.2019

Imagine you are working in a company that develops drones which should deliver parcels to customers. Your boss tells you to purchase a compact device that combines an IMU, GNSS and additional sensors in order to have the drone navigate safely. Searching on the web makes you read the following product description:
`https://www.vectornav.com/docs/default-source/product-brochures/industrial-series-product-brochure-(12-0009).pdf`

Based on this read, be prepared to answer the following questions and contribute to the discussion. You might need to research on the web to find more information. Please only mark those questions on the sheet where you feel comfortable to give your answers/comments.

Question 1 (2 points)

Would it make sense to purchase the VN-300 GNSS-Based Heading product for drone navigation? Where is the benefit from it and which modifications would it require on your drone?

Question 2 (2 points)

Does it pay off to invest in the additional barometer? In which situations would you think could it be good to have barometer measurements?

height change

Question 3 (2 points)

The output rate of the VN-300 (IMU Data) is only 400 Hz, compared to the other solutions from the product line. Is this a drawback?

Question 4 (2 points)

What does ”resolution” mean and is this important for your application (in particular in relation to the gyro components)?

Question 5 (2 points)

Assume you want to have an integrated (loosely/tightly coupled) navigation solution with an update rate of 100 Hz for positions and velocities from that manufacturer. Would that be possible? If yes, how? If not, why not.