Requirements List Part 1

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Requirements set by Teachers:

The technical focus this semester lays on sensor and actuator technology for mechatronic products. This should be applied in the prototype of a autonomous vehicle.

1. Object avoidance

2. Mechanical parts from RC-platform, or own Design(3D printing or Laser cutting)

3. !

4. At least 2 Analog sensors

5. At least 1 Analog filter

6. !

7. Basic Artificial Intelligence for avoidance/steering/braking

8. no machine learning

0.1 Project requirements:

1. Working prototype,tested and documented

2. Risk analysis(small part, 1-2 pages)

3. User interaction / requirement study

4. Hardware

    (a) 1 analog sensor(stated 2 above)
    (b) Motor control / driver, can be a module
    (c) At least one small designed custom PCB
    (d) Basic Mechanics

5. Software of own choice

6. Max 1000kr new stuff

0.2 Safety basics:

We have to implement the base of a Risk-analysis based on IEC14971 Standard for medical devices. This has to include functional risk and operator/person safety risk. Subjects can be Hazard, Likelyhood of occurence and it´s Severity

1 Project requirements

1. Prove of concept

2. down scaled version of a autonomous forklift

3. Maximum size of pallet: (to be decided)

4. Maximum size of vehicle: (to be decided)

5. modular?

6. load and unload pallets from truck?

7. stack pallets up to 2nd level (total of 2 levels (1 and 2))

8. drive with a 2 pallets stacked

Further requirements for the movement are to be defined but the base lays in not driving into anything (including stopping when object moves infront of drive path), and moving pallets without preprogrammed paths ergo autonomously.