ELEC-E8111 Autonomous mobile robots.

Exam 25.2.2020

1. What kind of machine vision cameras there are in the market? Describe shortly how images are typically processes and analyzed in the mobile robotics?   6 p

2. Describe the planar kinematic model of a typical four-wheel, front wheel steered robot outdoor platform, how odometry can be implemented with it?   6p

3. Explain shortly the structure of Inertial Measurement Unit and how signals are processed to estimate the pose?   6p

4. Explain the probabilistic phases of one operation cycle of the particle filter, exact equations are not required.   6p

5. Explain shortly the principles of EKF SLAM?   6p

6. A^* and D^* are widely used algorithms in path planning of mobile robots. Describe shortly the main features and differences?   6p