

Title: Robot Localization

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Abstract: Localization is one of the most important areas in low-level support for successful robot operations. This work presents several localization methods which have been also used for practical implementation on real robots. Among others, Monte Carlo Localization (MCL) was selected for implementation. It represents very successful method of probability localization in situations when data acquired from the sensors does not fully correspond to the reality. The resulting localization technique was successfully used for localization of several robots. The work also shows how a cheap low-end GPS receiver module can be used for localization on a graph-based map.

Keywords: robotics, localization, GPS, Monte Carlo Localization