

ABSTRACT OF THE DISCLOSURE

SYSTEMS AND METHODS FOR UTILIZING GRAPH BASED MAP INFORMATION AS PRIORS FOR LOCALIZATION USING PARTICLE FILTER

A computer-implemented method performed in a computerized system incorporating a central processing unit, a localization signal receiver, a plurality of sensors, separate and distinct from the localization signal receiver, and a memory, the computer-implemented method involving: using the central processing unit to initialize a plurality of particles based on an information on a map graph; using the central processing unit to repeatedly execute a particle filter loop, wherein the particle filter loop includes: using the central processing unit to perform a motion update of the plurality of particles; using the central processing unit to perform a measurement update of the plurality of particles; and using the central processing unit to perform a resampling of the plurality of particles based on particle importance weights and the map graph information. The location of the computerized system is subsequently determined based on the plurality of particles.

[FIGURE 2]