

ABSTRACT

[Problem] To provide a self-localization device that can reduce the processing time even when estimating the self-location in an environment where the number of pieces of three-dimensional point group data is large.

[Solving Means] A self-localization device 2 includes an estimation unit 5 that estimates a self-location of a mobile robot 1. The estimation unit 5 includes: a map generation unit 51 that generates a map of surroundings of the mobile robot 1 based on three-dimensional point group data detected by a detection unit 4; a geometric feature extraction unit 53 that, based on the map, extracts geometric features from a current map and extracts geometric features from a past map; a self-location calculation unit 54 that selects the geometric features extracted by the geometric feature extraction unit 53 as sets of geometric features and calculates self-locations in the past map based on the set of geometric features; and a self-location evaluation unit 55 that evaluates a degree of coincidence between the current map and the past map for each set of geometric features based on the self-locations calculated by the self-location calculation unit 54 and selects a self-location with a high degree of coincidence.