ABSTRACT

~~[Problem] To provide a~~ 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~~.~~ wherein the ~~[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~~.