ABSTRACT

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 self-localization device includes an estimation unit that includes: a map generation unit that generates a map of surroundings of the mobile robot based on three-dimensional point group data detected by a detection unit; a geometric feature extraction unit that extracts geometric features from a current map and extracts geometric features from a past map; a self-location calculation unit that selects the geometric features extracted by the geometric feature extraction unit as sets of geometric features and calculates self-locations in the past map; and a self-location evaluation unit that evaluates a degree of coincidence between the current map and the past map for each set of geometric features.