

Simultaneous localization and mapping, or SLAM for short is a process of creating a map using a robot or unmanned vehicle while simultaneously computing through that unknown environment. SLAM is one of the key parts in self-driving vehicles and other autonomous robots enabling awareness of where they are and the best routes to where they are going to.

The use of SLAM problems can be motivated in two different ways: one might be interested in detailed environment models, or one might seek to maintain an accurate sense of a mobile robot's location. SLAM serves both of these purposes

With the help of various types of cameras and sensors, like radar, lidars, ultrasonic, the robots with SLAM are effective for tasks such as sensor fusion, path planning and obstacle avoidance. By better understanding its environment, a robot can more effectively map, navigate, avoid obstacles and adjust to changes.

SLAM algorithm can be executed by different methods. One of them being visual SLAM, or vSLAM for short. This method uses images to establish the position of a robot, a vehicle, or a moving camera in an environment, and at the same time, construct a representation of the explored zone.

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