AIM: Implementation of Tangent Bug Algorithm

Introduction:

The tangent bug algorithm is solving motion-planning problem in a more realistic than bug 1 & bug 2 algorithms.

The tangent bug algorithm:

Algorithm: Tangent Bug Algorithm

Input: A robot with a range sensor

Output: A path to the goal point or a conclusion no such point exists

while true do

repeat

Continuously move toward the point n in {T, Oi} which minimizes d(x,n)+d(x, q-goal)

until

- The goal is encountered, or
- The direction that minimizes d(x,n)+d(x, q-goal) begins to increase.

Chose a boundary following direction which continues in the same direction as the most recent motion-to-goal direction.

repeat

Continuously update d-reach, d-followed, and {Oi}

Continuously move toward the point n in {Oi} which is in the chosen boundary direction.

until

- The goal is reached,
- The robot completes a cycle around the obstacle in which case the goal cannot be reached.