

Sensor based line follower self-driving car (sCar) with Obstacles Avoidance

Abstract

This paper introduces the sensor based line follower Self-driving Car (sCar) with obstacles avoidance. We develop a Collision Avoidance path-planning Algorithm (CAA) for dual motors controller line follower sCar that has ability for navigate collision avoidance path autonomously through a constraint track from initial position to goal position. A sensor will be mounted in front of the sCar that will detect line and obstacles along the track. A powerful close loop control system is used in the sCar which can calculates collision free path. The sCar senses a line and endeavors a collision free path itself accordingly towards the initial position to desired goal position using a simple feedback mechanism but yet very effective closed loop system. In some situation, there will be multiple destinations and the sCar should able to choose the desired destinations based on CAA applied to the microcontroller Arduino UNO which acts as the center control unit. The CAA will be implemented by C++ programming language. Evaluation results show that CAA calculates collision free path with constant performance which independent on environments.