

Self-Driving Car

Project Abstract

Marek Čepček, Karol Kuna (leader), Peter Soóky

The goal of this project is to build a four-wheel car from Lego Mindstorms EV3 capable of limited autonomous driving. The vehicle should be able to follow path marked by an easily distinguishable line on the ground. It should also avoid colliding with obstacles in front of it and if necessary bypass them.

The vehicle uses a rear-wheel drive layout with steerable front wheels and powered rear wheels. Steering angle of front wheels and rotation speed of rear wheels are managed by on-board controller brick using two separate motors.

Sensor suite consists of infra-red and color sensor, both mounted on a rotating base to increase the angle of view. The base rotates periodically using a motor. Color sensor is situated near the ground and is used to detect position of the line to follow. Infra-red sensor provides information about distance to nearest obstacle and is used for obstacle avoidance.