

AN AUTONOMOUSLY DRIVING MODEL VEHICLE

The aim of this work was the realization of a computer program with which a model car will be enabled to drive autonomously. For this purpose, a commercially available model car equipped with a camera and a Raspberry Pi microcomputer was employed. Thus, the images taken by the camera served as the only input to the software. In a first step, the computer vision library OpenCV was used for the lane detection and calculation of the steering angles. In a subsequent step, an artificial neural network has been used to turn the model car into a deep-learning, self-driving vehicle that is not only able to detect and follow lanes, but also to recognize and respond to traffic signs and people on the road. The *Deep Pi Car* series by David Tian has been used for orientation throughout the entire work.