**ABSTRACT**

The master’s thesis consists of 124 pages and encloses 69 figures, 10 tables and 54 references.

In the master's thesis a lane detection algorithm and parallel parking algorithm were designed and implemented.

Lane detection algorithm detects lanes properly on a straight part of the road. Parallel parking algorithm was modified and it was confirmed experimentally.

The model of self-driving electric car and hardware for implementing lane detection and parallel parking algorithms were designed. It provides a possibility for testing developed algorithms.

SELF-DRIVING ELECTRIC VEHICLE, LANE DETECTION, COMPUTER VISION, PARALLEL PARKING, HOUGH TRANSFORMATION

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Electromechanical automation system of a self-driving vehicle

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