

PROJECT REPORT ON
AUTOMATIC NAVIGATION SYSTEM USING ROAD LANE DETECTION

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ABSTRACT

Each year, there are thousands of car accidents in the U.S. These accidents claim many lives, and cost billions of dollars. Safety in automotives is one of the important considerations under limelight. So many efforts are also taken in this regard. Dozens of processors control every performance aspect of today's automobiles. However, it is now possible to avoid accidents in a large scale, by using intelligent driver assistant systems.

Intelligent Vehicles, as a main part of Intelligent Transportation Systems (ITS), will have great impact on transportation in near future. To navigate autonomously or follow a road, intelligent vehicles need to detect lanes. For autonomous vehicles and video-based navigation systems it is necessary to determine position of the vehicle relative to the road. One of the principal approaches is to detect lanes using a vision system in the vehicle.

One of the most significant application of ITS is the Driver Assistance System. We implemented a real-time lane departure warning system based on Canny edge filter and Hough transform on an image-processing platform. This system is insensitive to changes in road surface warns the driver of a motor vehicle when the vehicle is about to drift across either a central line or edge line. Our algorithm is able to provide robust and accurate extraction of lane markings under varying lighting and road conditions and thus helping the driver in efficient driving.
