Autonomous Off-Road Vehicle Using Computer Vision for Surveillance Applications

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The autonomous driving problem is one of many fundamental challenges for developing a robot capable of navigating a path and being able to drive itself through a multitude of directions. This work introduces a new approach for autonomously maneuvering a 6WD robot by analyzing the video stream from a standard camera mounted on top and using GPS information. The robot is able to self-navigate along a sidewalk, or outdoor trail. Hardware design, limitations, communications, and software dependencies are also a part of this work. With no prior knowledge of its environment, a defined trail with adequate lighting, and GPS inputs to determine the distance to a fixed GPS location, the algorithm can guide the robot without human intervention to reach the waypoint.

Awards Won:

Third Award of $1,000