Project Title

Virtual Barriers for Mitigating and Preventing Run-off-Road Crashes

Executive Summary Provide a brief description of your research including necessary background information (250 words or less).

A complimentary system is proposed which operates independent of existing ADAS. The method involves infrastructure technology to provide a new level of redundancy to elevate the functionality of vehicle autonomy. The method consists of three modules denoted as: Local Path Generation, Localization/Communication and Vehicle Guidance/Warning. The proposed method aims to identify geometries of travel lanes and develop a target path, independent of the vehicle. The system will also triangulate the vehicle’s position and transmit the path data to the vehicle for both immediate and future paths. Then, the vehicle will identify its current position and kinematics with respect to the path and determine what corrective actions, if any, are needed.

Findings & Outputs Describe the results (or anticipated results) of your research and outputs (e.g. new methodologies, technology or techniques, inventions or patents, software, curriculum, etc.)

Results have shown that it is feasible to create trajectories for vehicles that rely on information sources such as Google Earth, and GPS. These trajectories are expected to be tested on real vehicle settings to test their accuracy under any street condition.

Impacts & Benefits Describe the impacts (or expected impacts) your findings will have on the transportation system, traveling public, and the scientific body of knowledge.

This system serves as a backup to current ADAS technology which could enhance autonomous capacities on vehicles under any road conditions. This could accelerate the development of autonomous vehicle technology for usage under harsh snow, sand, or rain conditions in which current technology fails to navigate. Similarly, poor painting marks, and any placement of light reflecting sources that could affect vehicle sensors will now have a backup system to rely to verify whether a lane exists or not.