Driver Assistive System for Ground Vehicles

This Driver Assistive System provides assistance for navigation, lane keeping, and collision avoidance. State-of-the-art technologies, including a Radar and Vehicle Positioning System with Advanced Radar Processing as well as a Geospatial Database, provide assistance in low visibility driving situations. This system has been tested and is deployed in cars, trucks, buses, and plows.

Through the use of technologies such as radar and Differential Global Positioning Systems (DGPS) the system creates a digital map of the local environment including road lines, guardrails, signs, and other moving vehicles. The Head Up Display (HUD) overlays the road with the digital map, permitting the driver to view temporary and permanent objects in the same field of view thereby enabling them to operate while looking through both the device and windshield simultaneously.

This Driver Assistive System facilitates clear and safe driving in poor conditions such as fog, snow, or rain. Safe driving is made easy through the user-friendly system that provides drivers with real-time, accurate and clear digital maps of the surroundings when temporary visual obstructions inhibit driving speed and accuracy.

Features & Benefits
- Real time imaging to view the road as if there were no obstructions
- Can be used either in poor or clear driving conditions
- "Virtual rumble strip" as a warning to incorrect maneuvers
- Implements the following technologies:
  - Head Up Display (HUD)
  - Haptic Interface
  - Forward looking radar for collision avoidance
  - High accuracy geospatial databases
  - Inertial measurement unit sensors
  - Dead reckoning sensors
  - Radio Frequency (RF) communication

Technology Status
The system, including all technology, database, middleware and software, as well as some hardware, has been manufactured and commercially deployed.

IP Status
US patents have been issued. Patent #6,977,630

Primary Inventor
Donath and Shankwitz, et.al.
Department of Mechanical Engineering

Contact:
Andrew Morrow
Technology Marketing Manager
P: 612.626.7283
E: amorrow@umn.edu

UM Docket Z00053

Learn about more groundbreaking discoveries at www.research.umn.edu/techcomm