

Feasibility study on tracking based deer-vehicle detection using infrared-thermal camera

Deer vehicle collision (DVC) is constantly a major safety issue for the driving on rural road. It is estimated that there are over 35,000 DVCs yearly in the US resulting in 3 to 11 deaths, over 400 personal injuries, and close to 4,000 reported property damages of one thousand dollars or more. This justifies many attempts trying to detect deer on road. However, very little success has been achieved. In order to reduce the number of DVCs, this proposal will focus on the feasibility study of using an infrared thermal camera with tracking system to detect the presence of deer to avoid DVCs. The proposed system consists of an infrared thermal temperature image grabbing and processing system, which includes an infrared thermal camera, a frame grabber and an image processing system and a motion tracking system, which includes two motors with the corresponding motion control system. By analyzing the infrared thermal images which are independent of visible light, the presence of an animal can be determined in either night or day time through pattern recognition and matching. At the same time, the benefit of installing infrared thermal cameras on road to detect and track the animals' presence will also be investigated.