

Experimental validation and testing of a multisensory board for wildlife road crossing: power budget

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Abstract

Animal mortality due to vehicle collisions represents an important issue widely investigated in the literature. In order to limit this to happen, alerting and prevention systems have been developed, based on different sensors. Ultrasonic sensor data embody the Doppler signature of the human, animal or object present in the investigated scene. Furthermore, these data could be used in order to distinguish and count the number of beings by exploiting the energy content of the received signal. Radar sensors instead allow the detection of moving targets and in particular approaching and leaving movements are easily detected. On the contrary, infrared sensors allow a cleared detection of those movements, which happen parallel to the sensor plane (i.e. from right to left and viceversa). Therefore, by using these sensor data, drivers alerting signs can be actuated, in order to warn the likely presence of animals crossing the road. A Wireless Sensor Network (WSN) infrastructure can be used and in particular each sensor node should be equipped with an different sensor (e.g. ultrasonic, radar, PIR) to effectively detect the presence of moving animals approaching the road. In this way, different finite-size sensing/warning areas are deployed along the road. In addition, the well-known WSN features (e.g. scalability, configurability) allow to deploy the monitoring system in a great variety of scenarios.

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