Trail and Testing of Emergency Braking System

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Abstract: *The braking system was designed and applied on a car to make the driving process safety using embedded system design. Most of the accident occurs due to the delay of the driver to hit the brake, so in this project work braking system is developed such that when it is active it can apply brake depending upon the object sensed by the ultrasonic sensor and speed of vehicle. Currently, vehicles are often equipped with active safety systems to reduce the risk of accidents, many of which occur in the urban environments. The most popular include Antilock Braking Systems (ABS), Traction Control and Stability Control. All these systems employ different types of sensors to constantly monitor the conditions of the vehicle, and respond in an emergency situation. An intelligent mechatronic system includes an ultrasonic wave emitter provided on the front portion of a car producing and emitting ultrasonic waves frontward in a predetermined distance. An ultrasonic receiver is also placed on the front portion of the car operatively receiving a reflective ultrasonic wave signal. The reflected wave (detected pulse) gives the distance between the obstacle and the vehicle and RPM counter gives speed of vehicle. The microcontroller is used to control the braking of the vehicle based on the detection pulse information to push the brake pedal and apply brake to the car stupendously for safety purpose.*

Keywords: Ultrasonic Sensor, Intelligent Mechatronic system, RPM counter, Microcontroller

REFERENCES

[1] " Hardware Implementation of Intelligent Braking System" Published By - S. N. Sidek and M. J. E. Salami, Faculty of Engineering, International Islamic University Malaysia.

[2] "Intelligent Mechatronic Braking System" Published By -. G.V. Sairam, B. Suresh, CH. Sai Hemanth, K. Krishna sai

[3] Lennon,W.K., and. Passino,K.M . " Ieee Transaction On Control System Technology", VOL.7, NO.2, 1999

[4] Dr. Stephen Amell "IDEA Program Transportation Research Board National Research Council" ,May 31,1996

[5] C Govar , I Knight , F Okoro, I Simmons, G Coupr , P Massle, And B Smith presented "automatic energy brake system : technical requirement , cost and benefits" PPR 227 VERSION 1.1

Aleksendric, Dragan, University of balgrade, Faculty of mechanical engineering, Automotive Department , Serbia presented paper on "Intelligent Control Of Commercial Vehicle Braking System Function"

[7] www.sciencedirect.com/engg./automobile/brakingsystem/microcontrollerbraking

[8] www.ijetae.com/publish/201352/, VOL.3, ISSUE 4, APRIL 2013

[9] SAE Brake handbook of brake, February 1997