

Car brake strobe alert¹

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Embedded Systems Design

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0.1 Description

The fundamental idea of this project is to use an accelerometer to detect abrupt deceleration of a car in order to promptly alert the vehicles behind and better prevent car accidents (due to distraction).

0.2 Main objective

The Terasic DE10-Lite dev. board offers an on-board accelerometer which is suitable enough for this job. When a certain g-force threshold is detected, the system – via a CAN-bus shield built around the [Mircochip MCP2515](#) – will inject packets onto the vehicle's CAN network, responsible of blinking the rear lights².

0.3 Optional/backup objective

Log the CAN-bus network traffic into an SD card.

0.4 Components

- [Terasic DE10-Lite](#) dev. board
- [ADXL345](#) Digital Accelerometer (on-board)
- [CAN-BUS Shield V1.2](#)
- SD card breakout board

¹temporary title

²<https://youtu.be/L-QBntjVTac?t=140>