

ABSTRACT

The government requires the provider of public transportation to equip their vehicles with a device to inform if their vehicles got into an accident. The evidences collected by the police are not including the condition of vehicle before the accident yet. It is different from the airplane accident's investigation which including data of the airplane's condition from various sensors and being recorded on Flight Data Recorder (FDR). The result of FDR becomes the evidence of the accident and is expected to increase the accuracy of accident's investigation.

Car Data Recorder prototype is a system which capable to record the condition of four-wheel vehicle and give a notification if an accident has occurred. The record of the vehicle's condition utilizes Onboard Diagnostic-II (OBD-II) feature with the recording parameter: the position of gas pedal, the spin of machine, the speed of vehicle, and the temperature of machine. The detection of accident utilizes accelerometer ADXL345 sensor and the condition of the airbag on vehicle (open/not open) which can be monitored with Diagnostic Trouble Code (DTC). If there is any indication of accident, a notification in form of SMS will be sent using GSM SIM800L module.

The test of recording data using Car Data Recorder prototype feature on Daihatsu Ayla is able to utilize OBD-II feature to record the appointed parameter. The result of the recording can be processed into throttle position, engine revolution, vehicle speed, and engine temperature information in form of chart using Microsoft Excel. There is a 5 second delay in the Car Data Recorder prototype recorded data, but the pattern of the recorded data is identic with accuracy of engine revolution 84,8% and accuracy of vehicle speed 74,4%. Accelerometer ADXL345 and Diagnostic Trouble Code can be used to detect frontal collision and condition of airbag which indicate if an accident has occurred, and then GSM SIM800L can be used to send a notification in form of SMS if there is any indication of accident.

Keywords: Accident, Investigation, OBD-II, Accelerometer, Airbag, DTC.