Smart and Safe Driving Monitor

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There has been an increase in the number of heavy duty vehicles involved in accidents in Nigeria in recent years and over 74% of these reported cases were due to drunk driving. Any sustainable solution will have to be proactive rather than control, more technology driven and less human dependent. The project seeks to find a sustainable solution to the increase in the accidents of these fleets or trucks. Signals from the alcohol and touch sensor will unlock the system, the working of the circuit controlled by the PIC16F8766A. The processor was programmed using MICROCHIP MPLAB IDE and the circuit designed using PROTEUS 8.0. Alcohol level in the driver was determined using the MQ3 calibrated alcohol vapour sensor, which gave an analogue voltage based on the level of alcohol in the exhaled air. The result from the alcohol sensor is compared with the predetermined value of 35ug/100ml air. Any reading above this will create an impulse sending a message to a predetermined number if the driver insist in driving in that state. Similar impulses of were generated but of different voltage and frequencies when the vehicle over shot the pre-set speed of 45 miles per hour. Shock sensor monitor impulses generated in case of accident helping to track down a truck involved in an accident and a counter response from a driver if an accidental signal was wrongly sent. Similar principle was applied to a motorbike in which higher level of alcohol above 35ug/100ml air will deactivate the ignition system which is already synchronized with the detector system embedded in the safety helmet. In all tested cases, the system was effective in monitoring safe driving. The project if further developed will enhance safety on our roads.

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