# DESIGNING AND TESTING SMART HELMET TO DETECT THE MOTORBIKE RIDERS ACCIDENT AND ITS VENUE

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***ABSTRACT***

*The highest number of traffic accidents in Indonesia is currently dominated by two-wheeled or motorcycle accidents. Many motorists after having an accident will become unconscious (fainted) and even the rider dies. The vast area and location are still quiet, causing the accident location to be unknown. So that police officers or medical officers are often late in handling accidents, as a result the death of accident victims is unavoidable. This study aims to develop an accident detection system for motorbike riders' helmets. The system designed can send the accident location in real-time via SMS (Short Message Service) using a SmartPhone. The system is built using a Piezolektrik sensor, Pulse Heart Rate sensor, GSM SIM 900A module, U-Blox Neo 6M GPS module, and Arduino Nano. Testing is done by measuring the accuracy of the GSM communication module, GPS module, pulse sensor, and piezoelectric sensor as well as the overall functionality of the system. The results of this study indicate that the piezoelectric sensor works as desired. The pulse heart rate sensor has an accuracy rate of detecting the pulse on the neck with an average error of 1.488% and the coordinates of the location of the accident on the GPS module used with location coordinates on google maps with an average error latitude and longitude, which is 0.1917%. and 0.00362%. Meanwhile, the communication between GSM and the mobile device was delayed 11,2-12 seconds. This shows that the tools that have been built work well with fairly good accuracy.*

*Keywords: Accident, Piezoelectric, Pulse HeartRate, GPS, GSM.*