

## ABSTRACT

*Abstrak* –. Driver behaviour can be known when the driver make vehicle maneuvers to changes lanes such as the speed traveled, how often the driver performs maneuvers and the pattern of maneuver. Some drivers, especially for four-wheeled drivers, do not pay attention to several aspects when maneuvering to change lanes while driving,so that it can cause an accident that can harm the driver or the other driver. Therefore a system is designed to detect driver behavior based on driving maneuvers when changing lanes.The system is designed using signal processing by utilizing accelerometer and gyroscope sensors on smartphones with the MadgwickAHRS method. Raw accelerometer and gyroscope sensor data will be converted into roll, pitch and yaw using the MadgwickAHRS method to determine aggressive or non-aggressive driving behavior. Based on the results of the analysis, the accelerometer and gyroscope sensors on smartphones can detect the movement of four-wheeled drivers and the MadgwickAHRS method successfully converts the raw accelerometer and gyroscope sensor data as a reference for comparing aggressive and non-aggressive drivers.

**Kata Kunci:** Maneuver, Signal Processing, Accelerometer, Gyroscope, MadgwickAHRS