

ABSTRACT

Traffic accidents in Indonesia are still quite high. According to KORLANTAS POLRI shows an increase in the number of accidents from year to year, with human factors contributing around 61% of the total accidents. For this reason, researchers formulated the problem in the study as how to create a tool to prevent traffic accidents due to human negligence factors, how effective and beneficial SMART HAT is. With the purpose of creating, this study will test the effectiveness and benefits of SMART HAT.

SMART HAT uses micro:bit with motion sensor (motion sensor) in the form of an accelerometer that detects changes in the driver's head position. Motion sensor has many advantages, there is no interference/disruption from the surrounding environment compared more than using computer vision method.

This research sample was taken using purposive random sampling with a total of 30 four-wheeled vehicle drivers as respondents. Data processing for each respondent is summed and averaged for each question. Using a Likert scale, the method used includes an internal trial to determine the critical angle of focus loss, with an angle of 20 degrees or more. Effectiveness testing to assess the comfort, accuracy, timeliness of warnings, and ease of use of SMART HAT, benefit testing is carried out to assess its impact on driver focus.

The results showed that SMART HAT had an average effectiveness score of 3.765 on a scale of 5, with the timeliness of warnings as the highest aspect (3.90). The benefit test produced an average score of 3.68, indicating that SMART HAT is quite effective and useful in helping drivers maintain focus to prevent traffic accidents.

Overall, SMART HAT has proven to be a potential technology in improving driving safety. The mature creation process, as well as positive effectiveness and benefit test results, show that SMART HAT can provide timely and accurate warnings to drivers, helping drivers to stay focused while driving.