X-ANTUK SMART BAND (SMART BRACELET WITH PULSE RATE SENSOR AND IOT BASED SKIN CONDUCTANCY AS ANTICIPATE DROWSINESS WHILE DRIVING): Mohammad Fajar Diva Audiansyah, Pradipta Gigayana Kusuma Tungga Dewa

Abstract

Traffic accidents in Indonesia are still a serious problem because they can cause fatalities. Drowsiness is one of the main factors that causes a driver to lose consciousness which leads to an accident. The government's anticipation through an appeal to pull over when drowsy while driving has turned out to be ineffective. Several technologies to anticipate drowsiness while driving have also been developed, but these devices are considered impractical, ineffective and efficient. This study aims to develop the Xantuk device*Smartband*with oxygen saturation indicators, heart rate and skin conductivity based on IoT so that it can be used as a tool to anticipate drowsiness while driving. This tool was developed using the ADDIE method so that a technology was obtained that was successfully tested on users by utilizing Arduino Nano and Wemooz microcontroller technology. The results of the physiological measurements of the driver when wearing this tool can be accessed via a smartphone programmed with Blynk.Notifications when the driver is sleepy can appear on the user's smartphone as a pop-up. The results of the study showed that Xantuk*Smartband* have a general level of tool accuracy of 99.878%. This tool can measure the oxygen level of the rider with an accuracy of 99.69%, heart rate of 99.979% and skin conductance of 99.965%. The results of statistical analysis with the Wilcoxon test showed that the heart rate measurement of this tool was not significantly different from the measurement using an oximeter. The results of the user preference level test showed that this tool was very feasible to be developed with a score of 82%.

Keywords: anti-drowsiness, Smartband, microcontroller, wemooz, accuracy level, user preference level.