ABSTRACT

Modern combat vehicles have a high demand for effective safety and comfort systems. In an effort to enhance protection and user experience, PT PINDAD's testing of comfort systems in combat vehicles still relies on opinions from various individuals, leading to inconclusive data. Therefore, the use of sound sensors is increasingly developing as an efficient method. The KY-037 sensor is one of the sound sensors adopted in the combat vehicle industry. The purpose of this research is to describe the use of the KY-037 sensor in a tested mannequin within the combat vehicle as an effort to create safety and comfort. This sensor is designed to detect sound waves with high sensitivity, providing reliable detection capability for various frequency sounds. The methodology involves integrating the KY-037 sensor into a smart mannequin system tested inside the combat vehicle. The sensor is strategically placed in the mannequin's ear to collect sound data from the surrounding environment. The detected sound data is then analyzed using signal processing algorithms to identify sound patterns that may impact passenger comfort. The test results indicate that the KY-037 sensor is less sensitive in detecting relevant sounds within the combat vehicle environment, requiring a distance of ±5 cm and a direct sound direction between the KY-037 sensor and the incoming sound source to accurately detect the sounds. In conclusion, the use of the KY-037 sensor on the smart mannequin as a test subject for combat vehicles displays results in the form of detected decibel sound data and provides warnings when the decibel exceeds the threshold (> 85 dB), allowing the obtained data to be utilized for improving comfort in the tested combat vehicles.

Keywords: KY-037 sensor, sound detection, noise, comfort, combat vehicles.