COMPARISON OF SENSOR KY-037, SENSOR FC-04 AND SENSOR GY MAX4466 FOR MOTORCYCLE EXHAUST NOISE MEASUREMENTS BASED ON SOUND PRESSURE

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ABSTRACT

Noise can be interpreted as unwanted sound and disturbing human activities. One of the noise generated is due to the sound of motorized vehicle exhaust. The police, especially the traffic unit, are incessantly carrying out raids on motorbikes which are the focus of inspection or raids on exhausts, especially on the noise level they produce. Some motorcyclists replace the standard exhaust from the factory with racing exhaust and also modify the standard exhaust by splitting the silencer channel on the muffler so that the sound effect becomes louder, so that both have the effect of increasing the noise level threshold of an exhaust. The purpose of this research is to design a tool that can be used as a detector of noise in vehicle exhaust by comparing three sensors using the prototyping system design method. This design uses Arduino uno as a processor with a KY-037 sound sensor, GY Max4466 sensor and FC-04 sensor as a sound detector, LCD as a display viewer and a buzzer as a sound indicator. The test results produce a noise detection automation tool based on its function, which is to issue display data in the form of a warning that will appear on the LCD and also emit a sound as an indication of a warning on the vehicle's exhaust. From the three sensors, a comparison was obtained where the FC04 sensor obtained an accuracy value of 94.36%, a precision value of 90.91%, a response time of 1 second and a distance of 75 cm. On the GY-MAX4466 sensor, an accuracy value of 92.75%, a precision value of 89.09%, a response time of 3 seconds and a distance of 75 cm are obtained. On the KY-037 sensor, an accuracy value of 91.03% was obtained, a precision value of 87.27%, a response time of 12 seconds and a distance of 75 cm.

Keywords: Noise, Muffler, Sound sensor.