

## **ABSTRACT**

Electric Motorcycles have the latest innovation as they were created using environmentally friendly energy to reduce the level of pollution and noise produced by oil-fueled motorcycles. However, a quiet electric motorcycle engine will create a new problems. The minimal sound produced by electric motorcycles can result in the risk of accidents on the road, especially for pedestrians. With this problem, an effective solution is needed, namely the creation of a synthetic sound system on electric motorcycle which is useful for increasing the road user awareness. The method is using a hardware design and programming on microcontrollers. Field testing was carried out using noise level measuring instruments and tested in accordance with government regulations in Indonesia. The noise level test results obtained at the minimum level for Daily sound were 61.4 dB, for Futuristic sound were 59.9 dB, and for Racing sound were 60.8 dB. At the maximum level, the results for Daily sound were 72.5 dB, for Futuristic sound were 68.1 dB, and for Racing sound were 72.0 dB. The development of a synthetic sound system on electric motorbikes is very important to improve the safety of road users while still complying with regulatory standards that have been set in Indonesia.

Keyword: synthesis, sound, system, electric motorcycle, safety, road