ABSTRACT

Trains in Indonesia have their own system signals because there are several trajectories and must be directed in such a way as to avoid collisions with each other. The significance of system signals on trains to prevent trains taking opposite routes, keeping the safe separation distance between trains. The train system signaling technique in Bandung uses the axle counter method. The axle counter is to detect that a crossing block has been cleared from the presence of the train or not. Axle counter works by calculating the number of railway axles entering the track and comparing with the axle that leaves the track.

PT. KAI itself currently has a system to detect the arrival of trains through a vibration. The train vibration signal is formed from the vibration of the train when walking on the tracks. At that time there was a higher amplitude than the previous condition. But the system can only detect vibrations without knowing the vibrations are generated from trains or public vehicles.

The results of this study produce a system that can read vibrations produced by trains using the GY-521 module and can find a pattern of vibration frequencies at the locomotive that is from 90 Hz to 100 Hz and can withstand up to 10% noise from its amplitude.

Keywords: *Railway detection, piezoelectric sensors, railroad tracks*