

## **Abstract**

Infrastructure is very important in supporting the daily activities. Each infrastructure has a natural frequency that can be influenced by the surrounding frequencies. Frequency around infrastructure can cause damage when approaching the natural frequency of the infrastructure. One example of infrastructure is a bridge. The high degree of dependence of communities on the bridge so requires a monitoring process to ensure the safety of its users. Any activity that runs above the bridge has a frequency that can affect the natural frequency of the bridge. So that the frequency of monitoring required for any activity that occurs on the bridge. To obtain the frequency of these activities requires a transformation process domain signal from the time domain obtained from multiple sensor nodes to the frequency domain. Therefore, the algorithm used Fast Fourier Transform (FFT) which will be implemented on the prototype bridge structure health monitoring system to obtain the frequency of activity going on. From the results of the FFT algorithm implementation can be classified graphs and frequency values for activities that have a low frequency, medium and high.

Keywords: frequency, fast Fourier transform, the sensor node.